Avid® Digital News Gathering System

Hardware Guide

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Preface

This guide provides hardware information for Avid® broadcast and Digital News Gathering (DNG) systems. The guide explains how to install and operate the hardware for Avid's NewsCutter® editing system, Media Recorder® recording system, and AirPlay® MP playback system that are all based on the Avid Media Processor. The Avid MediaServer™ hardware is explained for server and client applications.

Who Should Use This Guide

Read this guide if you are responsible for installing, moving, or attempting to solve a problem with an Avid DNG system.

About This Manual

In addition to the system integration instructions, this guide provides basic information on each standard and optional DNG component. The information includes features, connections, and operation.

Included in This Manual

The Table of Contents that precedes this preface lists all topics included in the book. They are presented with the following overall structure:

- The first three chapters introduce the DNG products and list the standard and optional components of each. References to detailed installation information to specific chapters are also provided.
- The body of the guide provides information on opening the Avid Media Processor and describing its internal components. Step-by-step procedures for connecting each broadcast component to the Avid Media Processor are provided.
- Also in the body of the guide is information on starting up and shutting down the hardware, safe operation of the system, maintenance, and troubleshooting. Specifications include environmental, physical, and electrical.
- Finally, a detailed index helps you to locate specific topics quickly.

Symbols and Conventions

The guide uses the following special symbols and conventions:

1. Numbered lists, when order is important.
    a. Alphabetical lists, when the order of secondary items is important.

- Bulleted lists, when the order of the items is unimportant.
    - Indented dashed lists, when the order of subtopics is unimportant.

⌘ This symbol refers to the Apple or Command key. Hold down the Command key and another key to perform the desired keyboard equivalent.

A note provides important related information, reminders, recommendations, and strong suggestions.

A caution means that a specific action you take could cause harm to your computer or cause you to lose data.

A warning describes an action that could cause you physical harm. Follow the guidelines in the manual or on the unit itself when handling electrical equipment.

If You Need Help

If you are having trouble using your Avid Digital News Gathering (DNG) product, you should:

1. Retry the action, carefully following the instructions given for that task in this guide.
2. Check the documentation that came with your hardware for maintenance or hardware-related issues.
3. Check the Services & Support section of the Avid web site at http://www.avid.com for the latest FAQs, Tips & Techniques, Avid Answers, and other Avid online offerings.
4. Check the Avid Bulletin Board, "Avid Online," for product information. If you do not find the solution to your problem, you can exchange information with other Avid customers and Customer Support representatives.
5. News DNG Maintenance Agreement contract customers can contact Avid Broadcast Customer Support at 800-NEWS DNG (639-7364).

(*For more information about support and News DNG Maintenance Agreements, call Avid TeleSales at 800-949-2843.*)

Related Documentation

The following documents provide more information pertaining to broadcast and DNG products:

- *Avid NewsCutter User's Guide* — describes how to operate the NewsCutter system and software.
- *Avid MediaServer Administration Guide* — describes the administrative functions of the MediaServer.
- *Avid MediaServer Client User's Guide* — describes how to operate MediaServer clients and software.
- *Avid AirPlay MP User's Guide* — describes how to operate the AirPlay MP system and software.
- *Avid Media Recorder User's Guide* — describes how to operate the Media Recorder and software.

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CHAPTER 1

NewsCutter and Media Recorder Introduction

This chapter introduces the hardware for NewsCutter and Media Recorder. The introduction includes an overview of each system, a list of the standard and optional components, and references to configuration information later in this guide.

NewsCutter and Media Recorder Overview

NewsCutter is a disk-based, nonlinear, random access system for editing news stories, commercials, promotional material, and other broadcast needs.

Media Recorder is a disk-based, non-linear, random access, recorder station that offers broadcast quality recording and playback. Media Recorder captures and plays directly from the drive. You can record material from satellite or microwave feeds, microphone, audio sources, or decks.

NewsCutter System

The Avid Media Processor is a computer that serves as the central processing unit (CPU) for NewsCutter. The system and peripheral boards installed in the Avid Media Processor convert the incoming video and audio analog signals into digital format for storage.

A user interface (UI) monitor displays the user interface, including command menus and buttons. The keyboard and mouse serve as communication devices for entering commands and operating the system. A customer-supplied playback monitor displays material the system is playing or recording.

When the system records, it stores the audio and video media data in digital format on storage drives. The system plays back the digital material from the drives

During playback, the system converts the digital media stored on disk to the correct output format (either analog or serial digital format depending on the type of video board installed in the system).

NewsCutter Layout

Figure 1-1 shows all standard and optional NewsCutter components except for a source of reference video or a black burst generator. The rack shown in the figure is not supplied with a NewsCutter system.

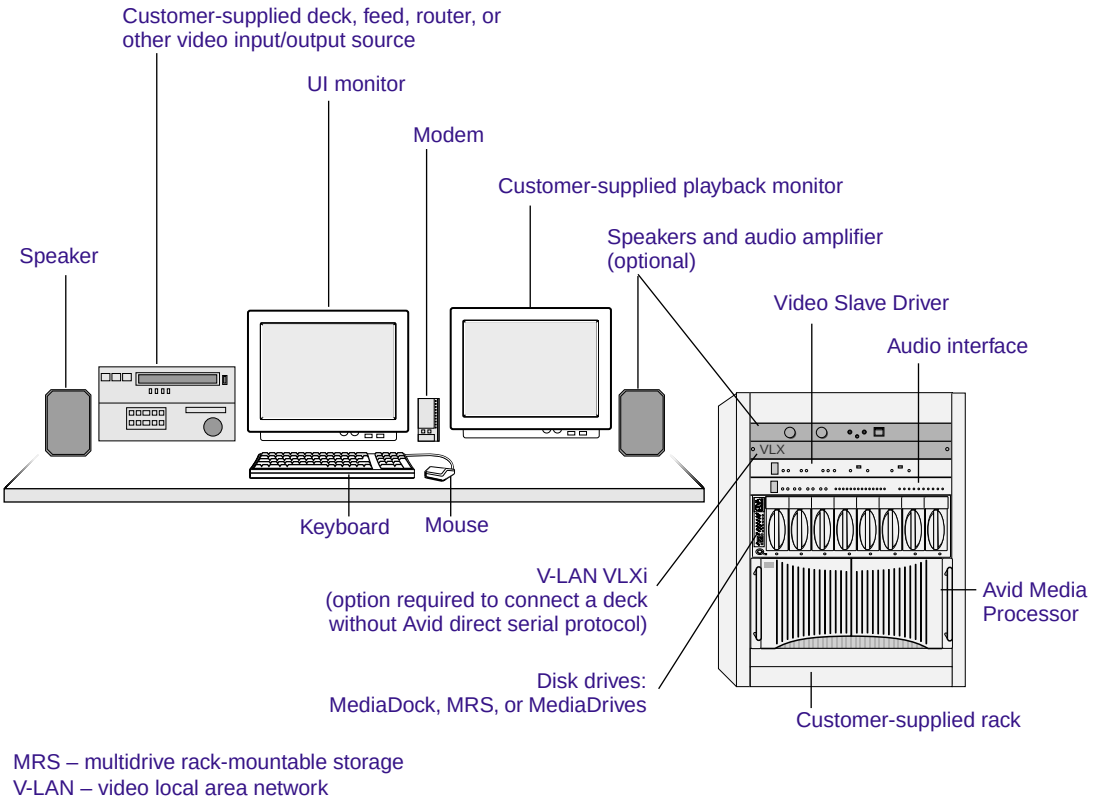


Figure 1-1 Sample NewsCutter System Layout

Media Recorder System

Media Recorder uses the same basic hardware as NewsCutter. However, it has a smaller UI monitor.

Media Recorder Layout

Figure 1-2 shows all standard and optional Media Recorder components except for a source of reference video or a black burst generator. The rack shown in the figure is not supplied with a Media Recorder system.

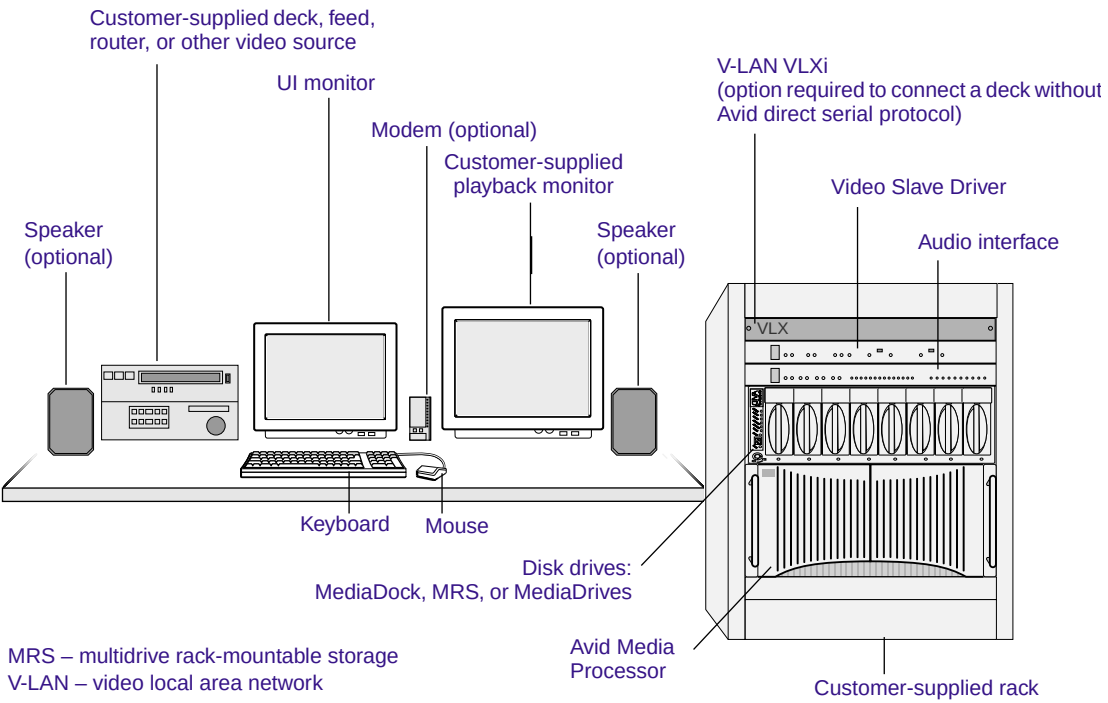


Figure 1-2 Sample Media Recorder System Layout

NewsCutter and Media Recorder Installation

The basic steps for installing a NewsCutter or Media Recorder system are:

1. Unpack and position or mount the Avid Media Processor on a desktop or rack, respectively.
2. Connect the communication and control devices, such as the keyboard and mouse.
3. Connect the audio hardware.
4. Connect program input/output devices, such as one or more decks, feeds, or routers.
5. Connect the monitors.
6. Connect the disk drives for storing digital video and audio.
7. Start the system.

   All Avid systems ship with the latest release of the Avid software installed. However, if your system includes some third-party software, you must install it yourself after reviewing the third-party licensing agreements and terms. Exported systems might not include some or any of the third-party software.

Some third-party software conflicts with Avid DNG software, causing unpredictable system operation. Before installing any third-party software, call Avid Broadcast Customer Support to find out if the software will degrade the Avid system performance.

NewsCutter and Media Recorder Components

The components listed in Table 1-1 are part of the NewsCutter and Media Recorder systems, unless otherwise noted. The table briefly

describes each piece of hardware and lists the chapters where information on connecting the components is provided.

Table 1-1 NewsCutter and Media Recorder Components

Components	Purpose of Components	See:
Avid Media Processor	The rack-mountable computer that runs the system; has industry-standard connectors for broadcast video input and output. The CPU has a minimum of 40 MB of RAM and a 250-MB or similar size internal hard drive (called the Avid system drive) for storing the system software.	Chapter 4
Peripheral boards	Video, audio, and disk controller boards installed in the Avid Media Processor.	Chapter 5
Avid Broadcast Video Board (ABVB)	Processes video input and output. Compatible with either analog video (composite or component) or component serial digital video, depending on the board option purchased.	Chapter 5
Advanced JPEG (Janus) board	Performs video compression using JPEG; handles two video streams for real-time effects.	Chapter 5
ATTO SiliconExpress IV board (also called the SCSI controller)	Connects the Avid Media Processor to drives storing digital video, audio, and graphics. Version IV is for wide, single-ended SCSI storage devices.	Chapter 5
Digidesign Pro Tools® board (also called the SA4 board)	Works with the audio interface to process digital audio.	Chapter 5

Table 1-1 NewsCutter and Media Recorder Components (Continued)

Components	Purpose of Components	See:
User control devices	Devices that allow the user to control the system.	Chapter 6
Apple® design keyboard, mouse, mouse pad, and color keycaps	The keyboard is for typing commands; the mouse selects and drags items displayed on the UI monitor; the keycaps show the commands mapped to each key.	Chapter 6
Dongle	A "key" that provides access to the system software.	Chapter 6
Serial port devices	Devices for communicating messages or system data.	Chapter 6
Customer-supplied printer	Prints system data (for example, data in bins).	Chapter 6
Modem (standard for NewsCutter, optional for Media Recorder)	Sends and receives electronic messages and files over telephone lines.	Chapter 6
Monitors	Display video and information required to run the system.	Chapter 7
UI monitor	The color monitor displays the user interface, which includes a menu bar for entering commands to operate the system, and bins displaying source shots (clips) and edited material (stories).	Chapter 7
Customer-supplied playback monitor	Displays incoming video when recording. Also displays playback material during the edit session.	Chapter 7
Timecode In (customer-supplied house or master clock)	The timecode is connected to the Avid Media Processor, decks, audio, and external devices. The timecode is used to synchronize all of the input data to a common clock time.	Chapter 7
Video input and output devices	Hardware for bringing video into and out of the Avid system.	Chapter 7

Table 1-1 NewsCutter and Media Recorder Components (Continued)

Components	Purpose of Components	See:
Customer-supplied deck	A video deck for playing and recording source material. Also for recording from the Avid system to videotape.	Chapter 7
Router or other video device	A router output or feed that can provide video input to the system.	Chapter 7
Black burst generator or house reference signal (required for all systems; customer-supplied)	A reference video signal must be provided to several components in the system for proper system performance.	Chapter 7
Control for decks or external devices	Devices and cable connections that enable the Avid system to control decks or other external video devices.	Chapter 7
Direct serial control	If a deck is supported by the Avid direct serial protocol, control is possible directly via an Avid serial control cable.	Chapter 7
V-LAN VLXi control	If a deck does not support Avid direct serial protocol, control is possible via V-LAN VLXi hardware, which includes a transmitter and appropriate receivers.	Chapter 7
General-purpose interface (GPI) (optional)	Triggers external hardware to play or create effects, generate characters, or create other special video effects using a parallel control interface.	Chapter 7

Table 1-1 NewsCutter and Media Recorder Components (Continued)

Components	Purpose of Components	See:
Audio hardware	Interface devices for sampling, recording, and playing audio.	Chapter 8
Audio interface (standard) (also called the Pro Tools)	Converts analog to digital format and/or accepts AES/EBU digital audio (48 kHz locked to video) to and from digital audio for the Pro Tools board.	Chapter 8
Avid eight-channel audio interface (optional)	An alternative to the standard audio interface. Additional input and output AES/EBU connectors provide two channels of stereo digital audio. Also provides more analog audio connectors, but only four input and four output channels are supported.	Chapter 8
Video Slave Driver	Locks audio and video sampling together to keep video and audio aligned; locks the system to a black burst generator reference signal.	Chapter 8
Audio amplifier and two speakers (NewsCutter only, optional in Europe and on Media Recorder)	Hardware for monitoring audio.	Chapter 8
Speaker/amplifier combination (optional)	A one-rack unit device for audio monitoring. Replaces the audio amplifier and separate speakers.	Chapter 8

Storage Options

Table 1-2 lists the storage options available for NewsCutter and Media Recorder systems. The listing includes a brief description of the storage option and where to find the installation instructions for each option.

Table 1-2 NewsCutter and Media Recorder Storage Options

Options	Description	See:
MediaDock chassis	An enclosure that houses up to eight 3.5-inch drives or up to four 5.25-inch drives. The chassis can stand alone or be rack mounted. Drives slide into slots and plug into a SCSI bus in the chassis.	"Connecting the MediaDock" on page 161
9-GB MediaDrives	Individual 9-GB MediaDrives linked in a single-ended SCSI chain connected to a SiliconExpress IV board. Connect no more than seven disks per SiliconExpress IV board.	"Connecting 9-GB MediaDrives" on page 158
Multidrive rack-mountable storage (MRS)	Provides multiple 9-GB drives enclosed in rack-mounted enclosures.	"Connecting Storage Drives" on page 151
One MRS enclosure	One MRS enclosure contains one to four 9-GB disk drives. Use single-ended SCSI connectors to link the MRS to a SiliconExpress IV board.	"Connecting One MRS Enclosure" on page 151
Two MRS enclosures	Two MRS enclosures linked in a chain provide a total of five to seven 9-GB disk drives. Use single-ended SCSI connectors to link the MRS enclosures to a SiliconExpress IV board.	"Connecting Two MRS Enclosures" on page 152

CHAPTER 2

Single-Channel AirPlay MP and AirPlay MP/NewsCutter Introduction

This chapter introduces the hardware for single-channel AirPlay MP and the AirPlay MP/NewsCutter combination system. The introduction includes an overview of each system, a list of the standard and optional components, and references to configuration information later in this guide.

AirPlay MP and AirPlay MP/NewsCutter Overview

Avid AirPlay MP is a disk-based, random-access playback system. As a replacement for the traditional video cassette library system, AirPlay MP automates the scheduling and playback of short segments, including news stories, commercials, promotional material, bumpers, IDs, and other broadcast audio and video.

Single-Channel AirPlay MP

The Avid Media Processor is a computer that serves as the CPU for AirPlay MP. The system and peripheral boards installed in the Avid Media Processor convert the incoming video and audio analog signals into digital format for storage.

A UI monitor displays the user interface; a keyboard and mouse serve as communication devices for entering commands and operating the system. A playback monitor displays material the system is playing or recording.

When the system records, it stores the audio and video media data in digital format on storage drives. The system plays back the digital material from the drives.

AirPlay MP can be configured as a one-, two-, or three-channel system. This section describes the single-channel system. See **Chapter 3** *for information about multichannel AirPlay MP.*

AirPlay MP/NewsCutter Combination System

The AirPlay MP/NewsCutter combination system has the same hardware as the single-channel AirPlay MP system. However, *both* NewsCutter and AirPlay MP software are installed on the system, so you can in turn, use NewsCutter features for editing programs and AirPlay MP features for playing back material.

AirPlay MP and AirPlay MP/NewsCutter Layout

Figure 2-1 shows the standard and optional components for single-channel AirPlay MP or an AirPlay MP/NewsCutter combination system.

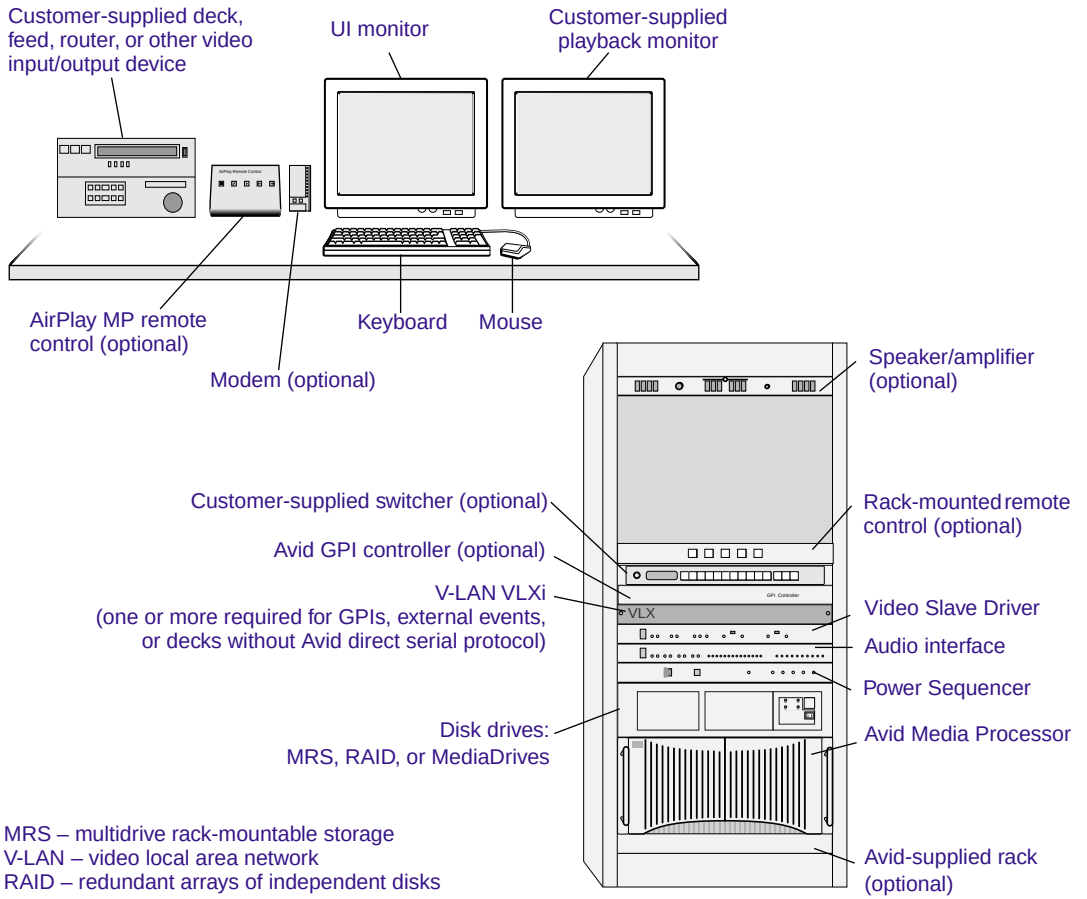


Figure 2-1 Sample Layout for a Single-Channel AirPlay MP or AirPlay MP/NewsCutter Combination System

Single-Channel AirPlay MP and AirPlay MP/NewsCutter Installation

Avid fully integrates single-channel AirPlay MP systems; the AirPlay MP/NewsCutter combination system requires assembly.

The basic steps for installing or checking the connections for a single-channel AirPlay MP or AirPlay MP/NewsCutter combination system are:

1. Set up the Avid Media Processor.
2. Connect the communication and control devices.
3. Connect the audio hardware.
4. Connect input/output devices, such as one or more decks, feeds, or routers.
5. Connect the monitors.
6. Connect the drives for storing digital video and audio.
7. Make sure all the components are plugged into the power sequencer and their power switches are on.
8. Start the system by turning on the power sequencer. The sequencer starts the components in the proper order.

   All Avid systems ship with the latest release of the Avid software installed. However, if your system includes some third-party software, you must install it yourself after reviewing the third-party licensing agreements and terms. Exported systems might not include some or any of the third-party software.

Some third-party software conflicts with Avid broadcast software, causing unpredictable system operation. Before installing any third-party software, call Avid Broadcast Customer Support to find out if the software will degrade the Avid system performance.

AirPlay MP and AirPlay MP/NewsCutter Components

Table 2-1 lists the standard and optional hardware for single-channel AirPlay MP and the AirPlay MP/NewsCutter combination system. The table briefly describes each piece of hardware and lists the chapters where information on connecting the components is provided.

Table 2-1 Components for Single-Channel AirPlay MP or AirPlay MP/NewsCutter Combination

Component	Purpose of Component	See:
Avid Media Processor	The rack-mountable computer that runs the system; has customized connectors for broadcast video input and output. The CPU has a minimum of 72 MB of RAM and a 250-MB or similar size internal hard drive (called the Avid system drive) for storing the system software.	Chapter 4
System enclosure (rack)	Expandable rack housing for the system.	Chapter 17
System boards	Auxiliary video and audio processors installed in the Avid Media Processor.	Chapter 5
Avid Broadcast Video Board (ABVB)	Processes video input and output. Compatible with either analog video (composite or component) or component serial digital video, depending on the top card selected for the board.	Chapter 5
Advanced JPEG (Janus) board (optional)	Performs two-field video compression using a JPEG algorithm; handles two streams of video for real-time effects.	Chapter 5
ATTO SiliconExpress IV board (also called the SCSI controller)	Connects the Avid Media Processor to magnetic storage devices. SiliconExpress IV is for wide, single-ended SCSI storage devices.	Chapter 5

Table 2-1 Components for Single-Channel AirPlay MP or AirPlay MP/NewsCutter Combination (Continued)

Component	Purpose of Component	See:
ATTO SiliconExpress 4D (differential) board (optional)	Connects the Avid Media Processor to wide, differential SCSI storage devices. Required if using storage expander hardware or connecting disks to the Avid Media Processor using long cables.	Chapter 5
Digidesign Pro Tools board (also called the SA4 board)	Works with the audio interface to process digital audio.	Chapter 5
Hurdler™ 4-port serial I/O expansion board	Provides four additional serial ports for connecting the Avid Media Processor to serial devices (for example, a modem, serial printer, or automation device).	Chapter 5
User control devices	Devices that allow the user to control the system.	Chapter 6
Apple design keyboard, mouse, mouse pad, and color keycaps	The keyboard is for typing commands; the mouse selects and drags items displayed on the UI monitor; the keycaps show the commands mapped to each key.	Chapter 6
Dongle	A "key" that provides access to the system software.	Chapter 6
AirPlay MP remote control (optional)	Manual user interface for controlling the system remotely by using buttons (desktop and rack-mountable versions).	Chapter 6
Serial port devices	Devices for communicating messages or system data.	Chapter 6
Customer-supplied printer	Prints system data (for example, data in bins and playlist).	Chapter 6
Modem (optional)	Sends and receives electronic mail messages and files over telephone lines.	Chapter 6
Monitors	Display video and information required to run the system.	Chapter 7

Table 2-1 Components for Single-Channel AirPlay MP or AirPlay MP/NewsCutter Combination (Continued)

Component	Purpose of Component	See:
UI monitor	Displays the user interface, which includes a menu bar for entering commands to operate the system, and bins for displaying source shots (called clips) and edited material (called stories).	Chapter 7
Customer-supplied playback monitor	Displays incoming video when recording. Also displays material during the work session.	Chapter 7
Timecode In (customer-supplied house or master clock)	The timecode is connected to the Avid Media Processor, decks, audio, and external devices. The timecode is used to synchronize all of the input data to a common clock time.	Chapter 7
Video input and output devices	Hardware for bringing video into and out of the Avid system.	Chapter 7
Customer-supplied deck	A deck for viewing and recording source material. Also for recording digital cuts from the Avid system to videotape.	Chapter 7
Router or other video device (optional)	A router output or feed that can provide video input to the system.	Chapter 7
Black burst generator or house reference signal (required for all systems; customer-supplied)	A reference video signal must be provided to several components in the system for proper system performance.	Chapter 7
Control for decks or external devices	Devices and cable connections that enable the Avid system to control decks or other external video devices.	Chapter 7
Direct serial control	If a deck is supported by the Avid direct serial protocol, control is possible directly via an Avid serial control cable.	Chapter 7
V-LAN VLXi control	If a deck does not support Avid direct serial protocol, control is possible via V-LAN VLXi hardware, which includes a transmitter and appropriate receivers.	Chapter 7

Table 2-1 Components for Single-Channel AirPlay MP or AirPlay MP/NewsCutter Combination (Continued)

Component	Purpose of Component	See:
General-purpose interface (GPI) (optional)	Triggers external hardware to play or create effects, generate characters, or create other special video effects using a parallel control interface.	Chapter 7
Audio hardware	Interface devices for sampling, recording, and playing audio.	Chapter 8
Audio interface (also called the Pro Tools)	Converts analog to digital format and/or accepts AES/EBU digital audio (48 kHz locked to video) to and from digital audio for the Pro Tools board.	Chapter 8
Avid eight-channel audio interface (optional)	An alternative to the standard audio interface. Additional input and output AES/EBU connectors provide two channels of stereo digital audio. Also provides more analog audio connectors, but only four input and four output channels are supported.	Chapter 8
Video Slave Driver	Locks audio and video sampling together to keep video and audio aligned; locks the system to a black burst generator reference signal.	Chapter 8
Audio amplifier and two speakers (optional)	Hardware for monitoring audio.	Chapter 8
Speaker/amplifier combination (optional)	A one-rack unit device for audio monitoring.	Chapter 8

Storage Options

Table 2-2 lists the storage options available for single-channel AirPlay MP and AirPlay MP/NewsCutter systems. The listing includes a brief description of the storage option and where to find the installation instructions for each option.

Table 2-2 Single-Channel AirPlay MP and AirPlay MP/NewsCutter Combination System Storage Options

Options	Description	See:
MediaDock chassis	An enclosure that houses up to eight 3.5-inch drives or up to four 5.25-inch drives. The chassis can stand alone or be rack mounted. Drives slide into slots and plug into a SCSI bus in the chassis.	"Connecting the MediaDock" on page 161
9-GB MediaDrives	Individual 9-GB MediaDrives linked in a single-ended SCSI chain connected to a SiliconExpress IV board. Connect no more than seven disks per SiliconExpress IV board.	"Connecting 9-GB MediaDrives" on page 158
Multidrive rack-mountable storage (MRS)	Provides multiple 9-GB drives enclosed in rack-mounted enclosures.	"Connecting Storage Drives" on page 151
One MRS enclosure	One MRS enclosure contains one to four 9-GB disk drives. Use single-ended SCSI connectors to link the MRS to a SiliconExpress IV board.	"Connecting One MRS Enclosure" on page 151
Two MRS enclosures	Two MRS enclosures linked in a chain provide a total of five to seven 9-GB disk drives. Use single-ended SCSI connectors to link the MRS enclosures to a SiliconExpress IV board.	"Connecting Two MRS Enclosures" on page 152
Multiple MRS enclosures with storage expanders	Use storage expanders to chain together a maximum of two MRS enclosures with a total of up to seven 9-GB disk drives. Use differential SCSI connectors to connect the MRS enclosures to a SiliconExpress 4D board.	"Connecting MRS Enclosures with Storage Expanders" on page 154
Redundant arrays of independent disks (RAID)	RAID storage provides built-in backup: 20% of the drive storage contains data to restore lost media. Each RAID unit contains multiple drives that can be replaced without shutting down the unit or losing data. RAID units use either a differential SCSI or Fibre Channel interface.	"Connecting SCSI RAID Units" on page 157

CHAPTER 3

Multichannel AirPlay MP Introduction

This chapter introduces the hardware for multichannel AirPlay MP systems. The first half of the chapter describes single-channel-with-record AirPlay MP; the second half describes two- or three-channel AirPlay MP.

The introduction includes an overview of each system, a list of the standard and optional components, and references to configuration information later in this guide.

Single-Channel-With-Record AirPlay MP Overview

Avid AirPlay MP is a disk-based, random-access playback system. As a replacement for the traditional video cassette library system, AirPlay MP automates the scheduling and playback of short segments, including news stories, commercials, promotional material, and other broadcast audio and video. A functional diagram of the single-channel-with-record AirPlay MP system is shown in Figure 3-1.

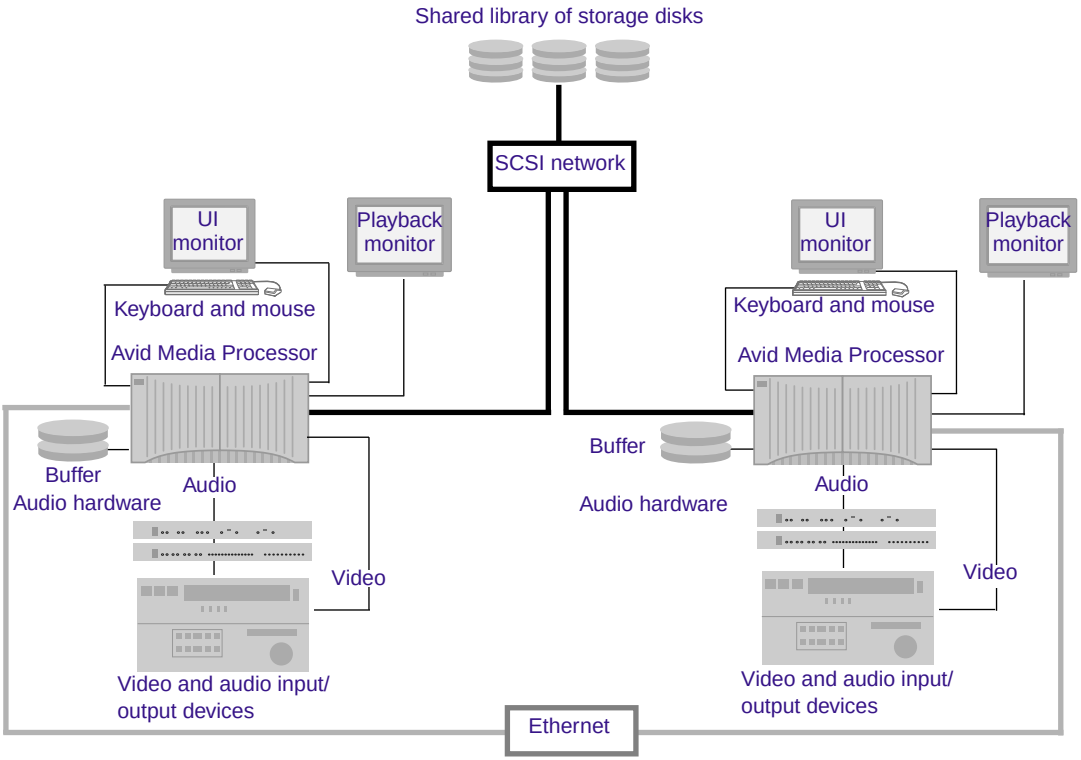


Figure 3-1 Single-Channel-With-Record AirPlay MP Diagram

Single-Channel-With-Record AirPlay MP System

The single-channel-with-record AirPlay MP includes two channels, which can serve as a record and a playback channel, and central and local storage for digital video.

The configuration allows you to:

- Simultaneously record and play back material
- In an emergency, switch the record channel to take over playback from the playback channel

The single-channel-with-record AirPlay MP system comprises two identical channels. Each channel includes an Avid Media Processor as the CPU, with additional system boards and video and audio hardware to convert incoming video and audio to digital format for storage.

Each channel also has a UI monitor for displaying the user interface; a keyboard and mouse for entering commands and operating the channel, and a customer-supplied playback monitor for displaying material the system is playing or recording.

Input video and audio by connecting a deck or feed to the system. When the system records, it stores the new material in digital format on magnetic buffer storage disks connected to the record channel via the SCSI. The system then copies the material into a shared library of magnetic storage drives. Each channel is linked to the shared library via a second SCSI network.

When the system plays back material, it copies the material from the shared library to the buffer disks for the playback channel. The system converts the digital media saved on the buffer disks to the correct output format (for example, the video output can be either analog or serial digital format depending on the type of video board installed in the system). The material plays back in real time.

Ethernet™ links the channels so they can exchange database information. The database is located on the record channel and is shared with the playback channel.

In contrast to the single-channel-with-record AirPlay MP system that provides one record and one playback channel, single-channel AirPlay MP includes only one channel that alternates between recording and playing back. Two- and three-channel AirPlay MP systems include one record channel, one or more playback channels, as well as an independent control channel to provide a centralized interface for the system. See **Chapter 2** *and the next sections of this chapter for more information about the other versions of AirPlay MP.*

Single-Channel-With-Record AirPlay MP Layout

Figure 3-2 shows the rack-mounted components in a fully installed single-channel-with-record AirPlay MP system. Figure 3-3 shows the workstation components for single-channel-with-record AirPlay MP.

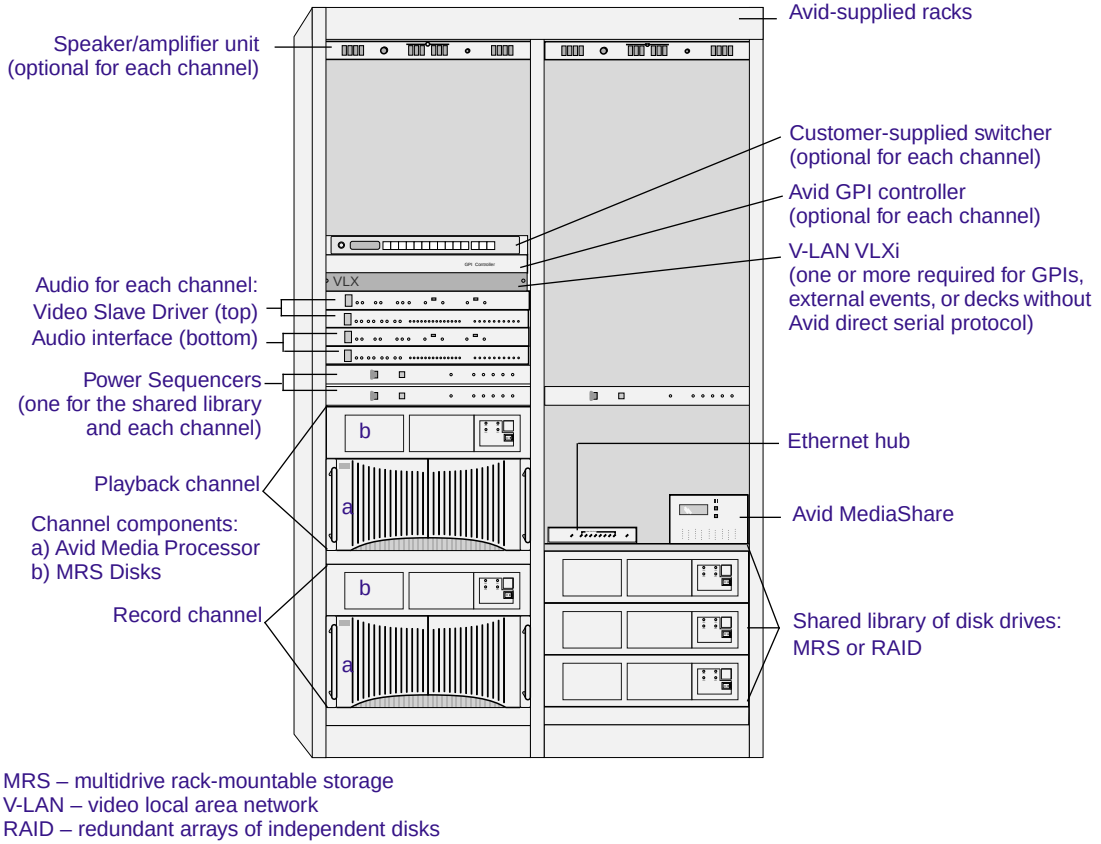


Figure 3-2 Rack-Mounted Components for Single-Channel-With-Record AirPlay MP

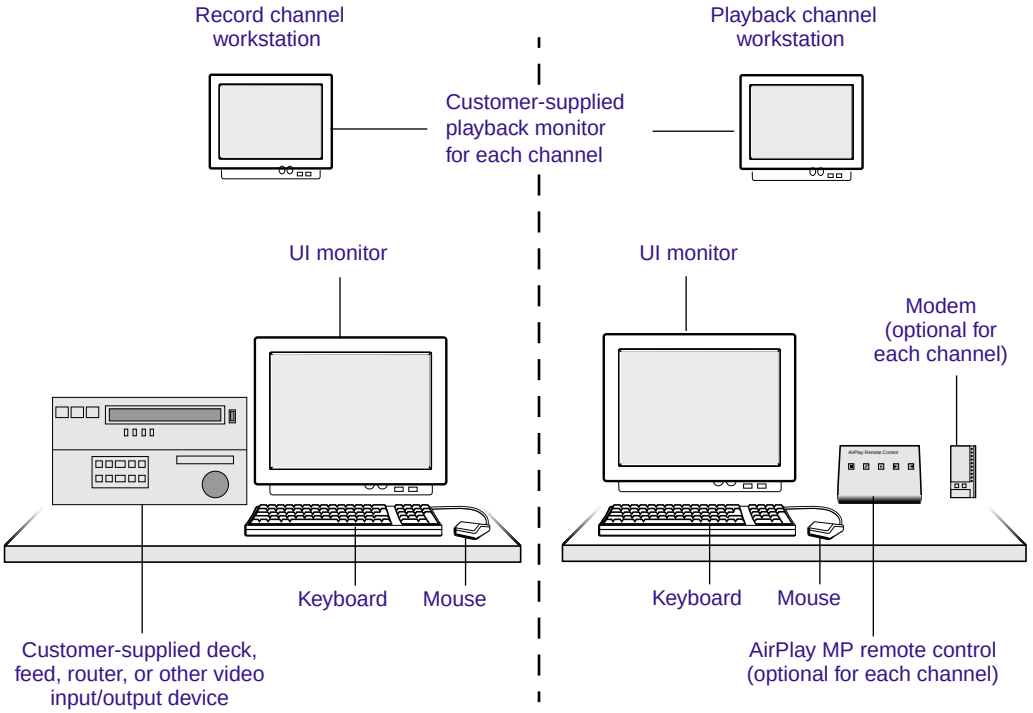


Figure 3-3 Additional Components for Single-Channel-With-Record AirPlay MP

Single-Channel-With-Record AirPlay MP Installation

Avid fully integrates the single-channel-with-record AirPlay MP system. You need only to connect the system to your house signals and equipment.

However, if you need to check or reinstall the system, follow these basic steps:

1. For each channel, including one playback channel and one record channel:
    a. Set up the Avid Media Processor.
    b. Connect the communication and control devices, such as the keyboard and mouse.
    c. Connect the audio hardware.
    d. Connect input/output devices, such as one or more decks, feeds, or routers.
    e. Connect a UI monitor.
    f. Connect the buffer disk drives for storing digital video and audio.
2. Install Ethernet to link the channels.
3. Connect the shared library of central storage disks.
4. Make sure all the components are plugged into the power sequencer and their power switches are on.
5. Start the system by turning on the power sequencer. The sequencer starts the components in the proper order.

    All Avid systems ship with the latest release of the Avid software installed. However, if your system includes some third-party software, you must install it yourself after reviewing the third-party licensing agreements and terms. Exported systems might not include some or any of the third-party software.

Some third-party software conflicts with Avid broadcast software, causing unpredictable system operation. Before installing any third-party software, call Avid Broadcast Customer Support to find out if the software will degrade the Avid system performance.

Single-Channel-With-Record AirPlay MP Components

Table 3-1 lists the components included in each individual channel. Table 3-2 lists the components that link the channels together. These tables list all the standard and optional components for single-channel-with-record AirPlay MP systems. The tables briefly describes each piece of hardware and lists the chapters where information on connecting the components is provided.

Table 3-1 Components for Each Channel in a Single-Channel-With-Record AirPlay MP System

Component	Purpose of Component	See:
Avid Media Processor	The rack-mountable Avid Media Processor that runs the system; has customized connectors for broadcast video input and output. The CPU has a minimum of 72 MB of RAM and a 250-MB or similar size internal hard drive (called the Avid system drive) for storing the system software.	Chapter 4
System boards	Auxiliary video and audio processors installed in the Avid Media Processor.	Chapter 5
Avid Broadcast Video Board (ABVB)	Processes video input and output. Compatible with either analog video (composite or component) or component serial digital video, depending on the top card selected for the board.	Chapter 5
Advanced JPEG (Janus) board (optional)	Performs two-field video compression using a JPEG algorithm; handles two streams of video for real-time effects.	Chapter 5

Table 3-1 Components for Each Channel in a Single-Channel-With-Record AirPlay MP System (Continued)

Component	Purpose of Component	See:
ATTO SiliconExpress IV board	Connects the Avid Media Processor to buffer storage devices. Connects to wide, single-ended SCSI storage devices, is configured using software, and handles two video streams for real-time effects.	Chapter 5
ATTO SiliconExpress 4D (differential) board	Connects the Avid Media Processor to the shared library of storage disks using wide, differential SCSI hardware.	Chapter 5
Digidesign Pro Tools board (also called the SA4 board)	Works with the audio interface to process digital audio.	Chapter 5
Hurdler 4-port serial I/O expansion board	Provides four additional serial ports for connecting the Avid Media Processor to multiple serial devices (for example, a modem or printer).	Chapter 5
User control devices	Devices connected to each channel that allow the user to control the channel.	Chapter 6
Apple design keyboard, mouse, mouse pad and color keycaps	The keyboard is for typing commands; the mouse selects and drags items displayed on the UI monitor; the keycaps show the commands mapped to each key.	Chapter 6
Dongle	A "key" that provides access to the system software.	Chapter 6
AirPlay MP remote control (optional)	Manual user interface for controlling the system remotely by using buttons.	Chapter 6
Serial port devices	Devices for communicating messages or system data.	Chapter 6
Customer-supplied printer (optional for any channel)	Prints system data (for example, data in bins and playlists).	Chapter 6
Modem (optional for any channel)	Sends and receives electronic mail messages and files over telephone lines.	Chapter 6

Table 3-1 Components for Each Channel in a Single-Channel-With-Record AirPlay MP System (Continued)

Component	Purpose of Component	See:
Monitors	Display video and information required to run the system.	Chapter 7
UI monitor (high-resolution, color multisync monitor)	Displays the central user interface, which includes a menu bar for entering commands to operate the system, bins displaying events, and playlists showing the events to air on each channel.	Chapter 7
Customer-supplied playback monitor	Displays incoming video when recording. Also displays material during the work session.	Chapter 7
Timecode In (customer-supplied house or master clock)	The timecode is connected to the Avid Media Processor, decks, audio, and external devices. The timecode is used to synchronize all of the input data to a common clock time.	Chapter 7
Video input and output devices	Hardware for bringing video into and out of the Avid system. Use decks connected directly to the system or some other external source of video.	Chapter 7
Customer-supplied deck	A deck for viewing and recording source material. Also for recording digital cuts from the Avid system to videotape.	Chapter 7
Router or other video source	A router output or feed that can provide video input to the system.	Chapter 7
Black burst generator or house reference signal (required for all systems; customer-supplied)	A reference video signal must be provided to several components in the system for proper system performance.	Chapter 7
Control for decks or external devices	Devices and cable connections that enable the Avid system to control decks or other external video devices.	Chapter 7
Direct serial control	If a deck is supported by the Avid direct serial protocol, control is possible directly via an Avid serial control cable.	Chapter 7

Table 3-1 Components for Each Channel in a Single-Channel-With-Record AirPlay MP System (Continued)

Component	Purpose of Component	See:
V-LAN VLXi control	If a deck does not support Avid direct serial protocol, control is possible via V-LAN VLXi hardware, which includes a transmitter and appropriate receivers.	Chapter 7
General-purpose interface (GPI) (optional)	Triggers external hardware to play or create effects, generate characters, or create other special video effects using a parallel control interface.	Chapter 7
Audio hardware	Interface devices for sampling, recording, and playing audio.	Chapter 8
Audio interface (standard) (also called Pro Tools)	Converts analog to digital format and/or accepts AES/EBU digital audio (48 kHz locked to video) to and from digital audio for the Pro Tools board.	Chapter 8
Avid eight-channel audio interface (optional)	An alternative to the standard audio interface. Additional input and output AES/EBU connectors provide two channels of stereo digital audio. Also provides more analog audio connectors, but only four input and four output channels are supported.	Chapter 8
Video Slave Driver	Locks audio and video sampling together to keep video and audio aligned; locks the system to a black burst generator reference signal.	Chapter 8
Audio amplifier and two speakers (optional)	Hardware for monitoring audio.	Chapter 8
Speaker/amplifier combination (optional)	A one-rack unit device for audio monitoring.	Chapter 8

The components listed in Table 3-2 link the channels in the single-channel-with-record AirPlay MP system.

Table 3-2 Single-Channel-With-Record AirPlay MP: Additional System Components

System Component	Purpose of Component	See:
System enclosure (rack)	Expandable rack housing for the system.	Chapter 17
Ethernet	A high-speed network for transmitting database information between channels. Conforms to IEEE® 802.3 specifications for 10Base-T networks. Uses standard, unshielded twisted pair (UTP) telephone cable; can also use co-axial cable. Avid recommends using Category 5 or better cable for external connections.	Chapter 11
Asante 10T hub/8	The center of the Ethernet "star" configuration. Connects to the network "spokes," or nodes. There is one node for each channel in the Avid system. Uses standard RJ-45 telephone connectors.	Chapter 11
Asante FriendlyNet 10T adapter (one per channel)	Required for linking an Avid Media Processor to an Ethernet cable plugged into the Ethernet hub. Needs one adapter per record/playback channel.	Chapter 11

Two- and Three-Channel AirPlay MP Overview

Avid AirPlay MP is a disk-based, random access playback system. As a replacement for the traditional video cassette library system, AirPlay MP automates the scheduling and playback of short segments, including news stories, commercials, promotions, and other broadcast audio and video. A functional diagram of the single-channel-with-record AirPlay MP system is shown in Figure 3-4.

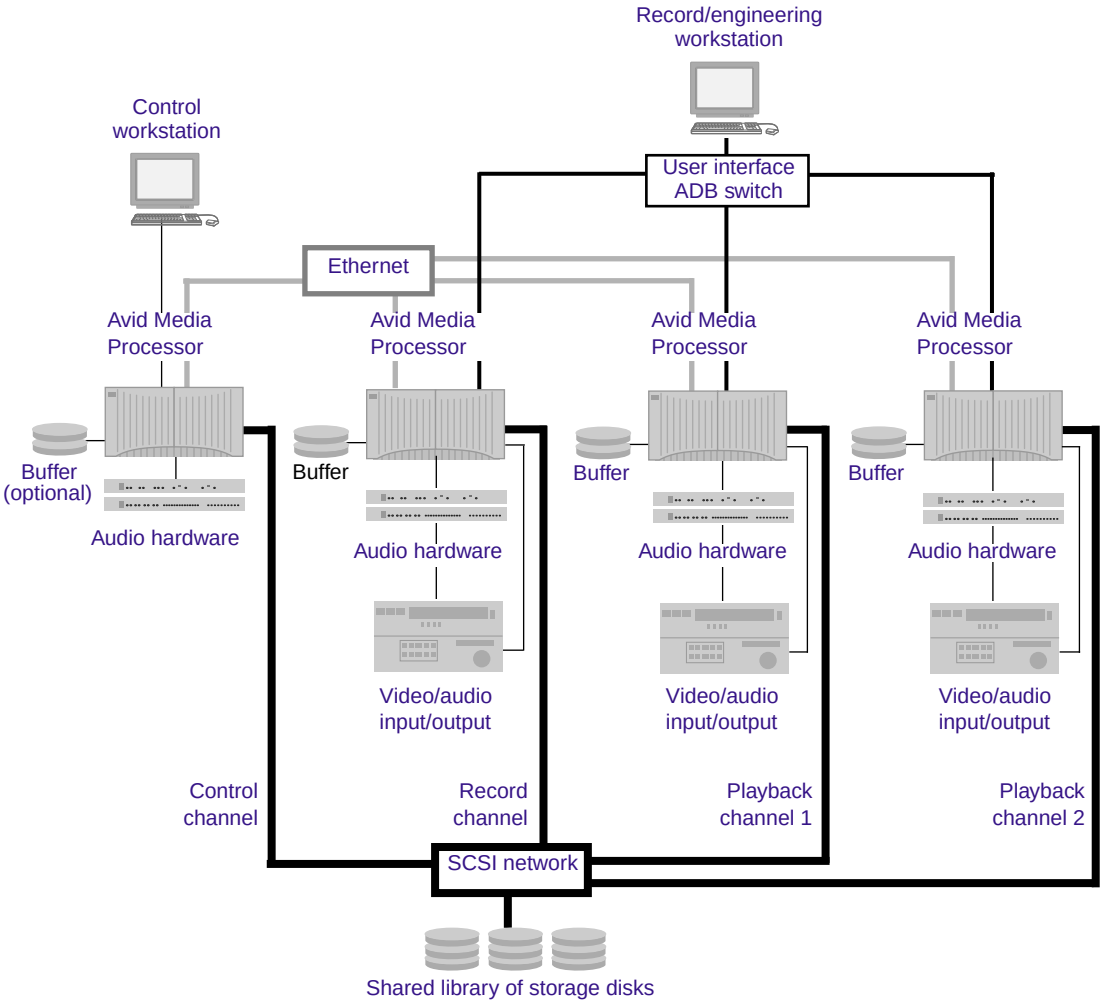


Figure 3-4 Three-Channel AirPlay MP Diagram

Two- and Three-Channel AirPlay MP Systems

Two- and three-channel AirPlay MP systems include a control channel to provide a centralized interface for the system and two or three record/playback channels. Only one channel can record at a time, but any of the record/playback channels can serve as the record channel. The systems also provide local and central storage for digital video.

The multichannel configuration allows you to:

- Simultaneously record and play back material.
- Play back on multiple channels.
- Play back the same material on multiple channels to provide redundancy; if the primary channel fails, you can quickly switch to the backup channel.

The multichannel AirPlay MP system includes two or three identical channels for recording or playing back material. Each channel includes an Avid Media Processor as the CPU, with system boards and video and audio hardware to convert incoming video and audio to digital format for storage.

Each record/playback channel also has a customer-supplied playback monitor for displaying material the system is playing or recording.

Input video and audio by connecting a deck or feed to any channel—generally only the record channel—to input video and audio. When the system records, it stores the material in digital format on SCSI buffer storage disks connected to the record channel. The system then copies the material to a shared library of magnetic storage disks. Each channel is linked to the shared library via a SCSI network, but only the record channel has write-access to the shared library.

When the system plays back material, it copies the material from the shared library to the buffer disks for the playback channel. The system converts the digital media saved on the buffer disks to the correct format for output to a deck or broadcast channel (for example, the

video output can be either analog or serial digital format depending on the type of video board installed in the system). The material plays back in real time.

Each playback and record channel does not have its own UI monitor for displaying the user interface or keyboard and mouse for operating the channel. Instead, each channel is linked to the record/engineering workstation through a user interface ADB switch. The monitor, keyboard, and mouse functions for each channel are selected by the user interface ADB switch and controlled by the record/engineering workstation.

The control channel has the same hardware as the playback and record channels with the addition of a monitor for displaying the central control user interface and keyboard and mouse for entering central control commands.

Ethernet links the channels so they can exchange control and database information. The database is located on the record channel and is shared with the playback channels.

In contrast to the two- or three-channel AirPlay MP system, single-channel AirPlay MP includes only one channel that alternates between recording and playing back. The single-channel-with-record AirPlay MP system does not provide a control channel with a centralized interface. See **Chapter 2** *and previous sections of this chapter for more information about the other versions of AirPlay MP.*

Two- and Three-Channel AirPlay MP Layout

Figure 3-5 and Figure 3-6 show the standard and optional components for a three-channel AirPlay MP system.

Two-channel system components for the second playback channel are omitted, and the record channel is located below playback channel 1.

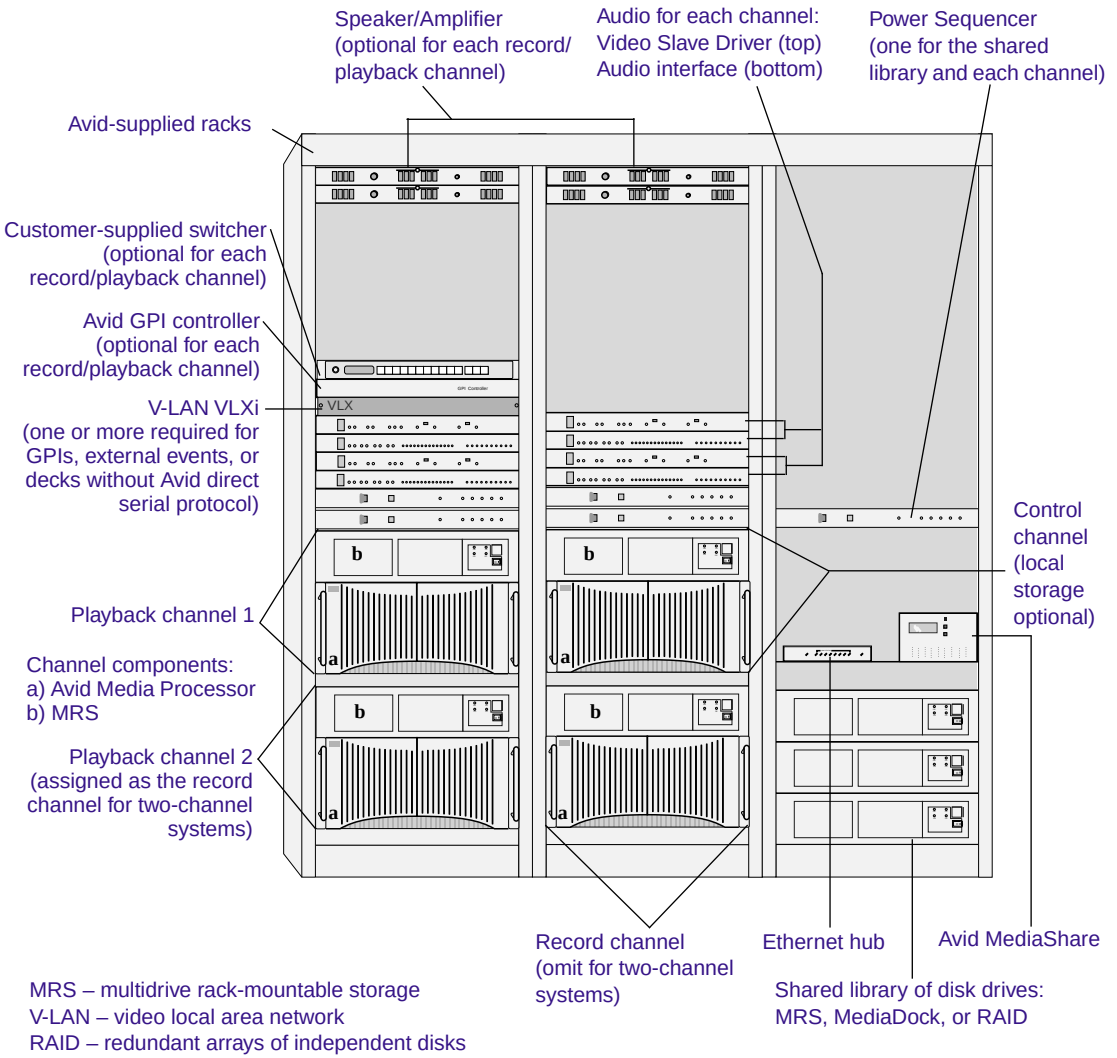


Figure 3-5 Three-Channel AirPlay MP Rack-Mounted Components

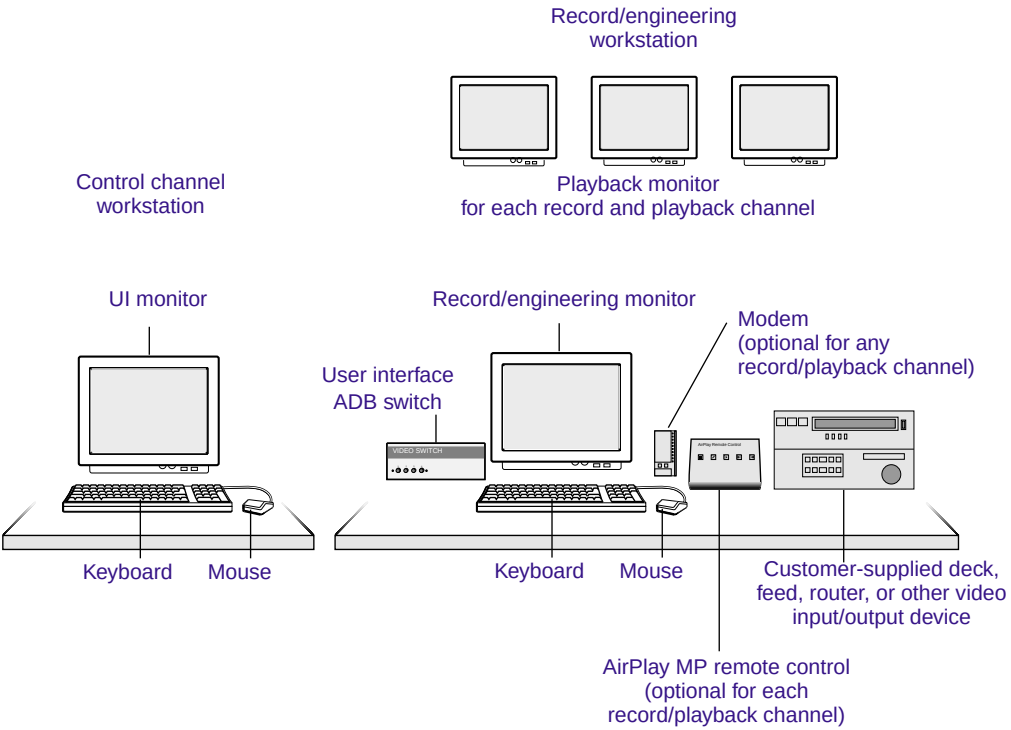


Figure 3-6 Three-Channel AirPlay MP Additional Components

Two- and Three-Channel AirPlay Installation

Avid fully integrates two- and three-channel AirPlay systems. You need only to connect your system to your house signals and equipment.

However, if you need to check or reinstall the system, follow these basic steps:

1. For each channel:
    a. Set up the Avid Media Processor.
    b. Connect the communication and control devices, such as keyboard and mouse.
    c. Connect the audio hardware.
    d. Connect input/output devices, such as one or more decks.
    e. Connect a UI monitor to the control channel, but *not* to the *record* or *playback channel*s.
    f. Connect the buffer disk drives for storing digital video and audio.
2. Connect the record/engineering workstation to each record and playback channel.
3. Install Ethernet to link the channels.
4. Connect the shared library of central storage disks.
5. Make sure all the components are plugged into the power sequencer and their power switches are on.
6. Start the system by turning on the power sequencer. The sequencer starts the components in the proper order.

    All Avid systems ship with the latest release of the Avid software installed. However, if your system includes some third-party software, you must install it yourself after reviewing the third-party licensing agreements and terms. Exported systems might not include some or any of the third-party software.

Some third-party software conflicts with Avid broadcast software, causing unpredictable system operation. Before installing any third-party software, call Avid Broadcast Customer Support to find out if the software will degrade the Avid system performance.

Two- and Three-Channel AirPlay MP Components

Table 3-3 and Table 3-4 list the standard and optional components for two- and three-channel AirPlay MP systems. The tables briefly describe each piece of hardware and list the chapters where information on connecting the components is provided.

Table 3-3 lists the components required to set up individual channels. A system must include one control channel; it also has two or three playback channels or a record channel with one or two playback channels.

Record and playback channels have exactly the same components, but differ from the control channel. Therefore, each component is marked to show whether it is part of the control channel, a record or playback channel, or all channels.

Table 3-4 lists the components used to link the channels.

Table 3-3 Multichannel AirPlay MP Channel Components

Channel:	Component	Purpose of Component	See:
Control Record Playback	Avid Media Processor (with rack-mount housing and slide)	The rack-mountable Avid Media Processor that runs the system; has customized connectors for broadcast video input and output. The CPU has a minimum of 72 MB of RAM and a 250-MB or similar size internal hard drive (called the Avid system drive) for storing the system software.	Chapter 4

Table 3-3 Multichannel AirPlay MP Channel Components (Continued)

Channel:	Component	Purpose of Component	See:
	System boards	Auxiliary video and audio processors installed in the Avid Media Processor.	Chapter 5
Control Record Playback	Avid Broadcast Video Board (ABVB)	Processes video input and output. Compatible with either analog video (composite or component) or component serial digital video, depending on the top card selected for the board.	Chapter 5
Control Record Playback	Advanced JPEG (Janus) board	Performs two-field video compression using a JPEG algorithm; handles two streams of video for real-time effects.	Chapter 5
Control Record Playback	ATTO SiliconExpress IV board (also called the SCSI controller)	Connects the Avid Media Processor to the local, buffer magnetic storage drives using wide, single-ended SCSI hardware connections.	Chapter 5
Control Record Playback	ATTO SiliconExpress 4D (differential) board	Connects the Avid Media Processor to the shared library of magnetic storage drives using wide, differential SCSI hardware.	Chapter 5
Control Record Playback	Digidesign Pro Tools board (also called the SA4 board)	Works with the audio interface to process digital audio.	Chapter 5
Record Playback	Hurdler 4-port serial I/O expansion board (optional)	Provides four additional serial ports for connecting the Avid Media Processor to serial devices (for example, a printer).	Chapter 5
	User control devices	Devices that allow the user to control the system. *Control channel:* Includes a keyboard, mouse, and dongle for centralized control of the system. *Record/playback channel:* Includes only a dongle, not keyboard and mouse. The record/engineering workstation provides control for the record/playback channels.	Chapter 6

Table 3-3 Multichannel AirPlay MP Channel Components (Continued)

Channel:	Component	Purpose of Component	See:
Control	Apple design keyboard, mouse, mouse pad and color keycaps	The keyboard is for typing commands; the mouse selects and drags items displayed on the UI monitor; the keycaps show the commands mapped to each key.	Chapter 6
Control Record Playback	Dongle	A "key" that provides access to the system software.	Chapter 6
Record Playback	AirPlay MP remote control (optional)	Manual user interface for controlling the system remotely using buttons.	Chapter 6
	Serial port devices	Devices for communicating messages or system data.	Chapter 6
Control Record Playback	Customer-supplied printer	Prints system data (for example, data in bins and playlists).	Chapter 6
Control Record Playback	Modem (optional for any channel)	Sends and receives electronic mail messages and files over telephone lines.	Chapter 6
Record (channel with database)	Timecode In (customer-supplied house or master clock)	The timecode is connected to the Avid Media Processor, decks, audio, and external devices. The timecode is used to synchronize all of the input data to a common clock time.	Chapter 7
	Monitors	Display video and information required to run the system.	Chapter 7
Control	UI monitor (high-resolution, color multisync monitor)	Displays the central user interface, which includes a menu bar for entering commands to operate the system, bins displaying events, and playlists showing the events to air on each channel. *Record/playback channels:* Connect to the record/engineering monitor, which shows the UI for one record/playback channel at a time.	Chapter 7

Table 3-3 Multichannel AirPlay MP Channel Components (Continued)

Channel:	Component	Purpose of Component	See:
Record Playback	Customer-supplied playback monitor	Displays incoming video when recording. Also displays material during the work session.	Chapter 7
	Video input and output devices	Hardware for bringing video into and out of the Avid system.	Chapter 7
Record Playback	Customer-supplied deck	A customer-supplied deck for viewing and recording source material. Also for recording digital cuts from the Avid system to videotape.	Chapter 7
Record Playback	Router/other device	A router output or feed that can provide video input to the system.	Chapter 7
Control Record Playback	Black burst generator or house reference signal (required for all systems)	A reference video signal must be provided to several components in the system for proper system performance.	Chapter 7
	Control for decks or external devices	Devices and cable connections that enable the Avid system to control decks or other external video devices.	Chapter 7
Record Playback	Direct serial control	If a deck is supported by the Avid direct serial protocol, control is possible directly via an Avid serial control cable.	Chapter 7
Record Playback	V-LAN VLXi control	If a deck does not support Avid direct serial protocol, control is possible via V-LAN VLXi hardware, which includes a transmitter and appropriate receivers.	Chapter 7
Control Record Playback	General-purpose interface (GPI)	Triggers external hardware to play or create effects, generate characters, or create other special video effects using a parallel control interface.	Chapter 7

Table 3-3 Multichannel AirPlay MP Channel Components (Continued)

Channel:	Component	Purpose of Component	See:
	Audio hardware	Interface devices for sampling, recording, and playing audio.	Chapter 8
Control Record Playback	Audio interface (standard) (also called Pro Tools)	Converts analog to digital format and/or accepts AES/EBU digital audio (48 kHz locked to video) to and from digital audio for the Pro Tools board.	Chapter 8
Control Record Playback	Avid eight-channel audio interface (optional)	An alternative to the standard audio interface. Additional input and output AES/EBU connectors provide two channels of stereo digital audio. Also provides more analog audio connectors, but only four input and four output channels are supported.	Chapter 8
Control Record Playback	Video Slave Driver	Locks audio and video sampling together to keep video and audio aligned; locks the system to a black burst generator reference signal.	Chapter 8
Control Record Playback	Audio amplifier and two speakers (optional)	Hardware for monitoring audio.	Chapter 8
Control Record Playback	Speaker/amplifier combination (optional)	A one-rack unit device for audio monitoring.	Chapter 8

Components for Linking the Channels

The components listed in Table 3-4 link the channels in a multichannel AirPlay MP system.

Table 3-4 Multichannel AirPlay MP Linking Components

System Components	Purpose of Components	See:
System enclosure (rack)	Expandable rack housing for the system	Chapter 17
Ethernet	A high-speed network for transmitting control and database information between channels. Conforms to IEEE 802.3 specifications for 10Base-T networks. Uses standard, unshielded twisted pair (UTP) telephone cable.	Chapter 11
Asante 10T hub/8	The center of the Ethernet "star" configuration. Connects to the network "spokes," or nodes. There is one node for each channel in the Avid system. Uses standard RJ-45 telephone connectors.	Chapter 11
Asante FriendlyNet 10T adapter (one per channel)	Required for linking an Avid Media Processor to an Ethernet cable plugged into the Ethernet hub. Needs one adapter per control and record/playback channel.	Chapter 11
Record/engineering workstation	Includes a monitor and control devices that switch between the record/playback channels. Lets the user operate one channel at a time for recording, playing back, and organizing material. *Control channel:* Not usually connected to the record/engineering workstation. *Record/playback channel:* Each channel is connected to the record/engineering workstation.	Chapter 10
Keyboard and mouse	For controlling each channel.	Chapter 10
17-inch record/engineering monitor	Displays the user interface for one channel at a time. The interface includes a menu bar for entering commands to operate the system and bins for displaying events.	Chapter 10
User interface ADB switch	Switches the monitor and keyboard control between record/playback channels.	Chapter 10

AirPlay MP Storage Options

Table 3-5 lists the storage options available for single- and multichannel AirPlay MP systems. The listing includes a brief description of the storage option and where to find the installation instructions for each option.

Table 3-5 AirPlay MP Storage Options

Options	Description	See:
MediaDock chassis	An enclosure that houses up to eight 3.5-inch drives or up to four 5.25-inch drives. The chassis can stand alone or be rack mounted. Drives slide into slots and plug into a SCSI bus in the chassis.	"Connecting the MediaDock" on page 161
9-GB MediaDrives	Individual 9-GB MediaDrives linked in a single-ended SCSI chain connected to a SiliconExpress IV board. Connect no more than seven disks per SiliconExpress IV board.	"Connecting 9-GB MediaDrives" on page 158
Multidrive rack-mountable storage (MRS)	Provides multiple 9-GB drives enclosed in rack-mounted enclosures.	"Connecting Storage Drives" on page 151
One MRS enclosure	One MRS enclosure contains one to four 9-GB disk drives. Use single-ended SCSI connectors to link the MRS to a SiliconExpress IV board.	"Connecting One MRS Enclosure" on page 151
Two MRS enclosures	Two MRS enclosures linked in a chain provide a total of five to seven 9-GB disk drives. Use single-ended SCSI connectors to link the MRS enclosures to a SiliconExpress IV board.	"Connecting Two MRS Enclosures" on page 152
Multiple MRS enclosures with storage expanders	Use storage expanders to chain together a maximum of two MRS enclosures with a total of up to seven 9-GB disk drives. Use differential SCSI connectors to connect the MRS enclosures to a SiliconExpress 4D board.	"Connecting MRS Enclosures with Storage Expanders" on page 154

Table 3-5 AirPlay MP Storage Options (Continued)

Options	Description	See:
Shared library (buffer storage)	Each channel is connected to the shared library, which is a group of SCSI storage disks used as a central storage location for digital media. Material recorded on a channel's buffer disks is transferred to the shared library for long-term storage, then transferred back to a buffer for playback.	"Multichannel Storage Configurations" on page 140
MediaShare	Functions as the central controller between the SCSI shared library of storage disks and multiple Avid Media Processors. Regulates the transfer of digital media to and from the shared library.	"Connecting the MediaShare Library" on page 159
Redundant arrays of independent disks (RAID)	RAID storage provides built-in backup: 20% of the drive storage contains data to restore lost media. Each RAID unit contains multiple drives that can be replaced without shutting down the unit or losing data. RAID units use either a differential SCSI or Fibre Channel interface.	"Connecting SCSI RAID Units" on page 157

CHAPTER 4

Avid Media Processor Overview

The core of all Avid DNG client systems is the Avid Media Processor with a broadcast connector panel attached to the back to accept input and output signals. This chapter identifies the Avid Media Processor hardware and its connections.

About the Avid Media Processor

The Avid Media Processor is the central processor that runs each Avid broadcast system. The Avid Media Processor is based on the Apple Macintosh® computer. Installed in the Avid Media Processor are peripheral boards that process the audio, video, and storage data.

The Avid Media Processor is based on, and fully compatible with, the Power Macintosh® 8100/100. The Avid Media Processor is designed to process media, and not to be used as general-purpose computer. However, the Avid Media Processor can perform all the functions of a general-purpose computer.

The Avid Media Processor provides 100 MHz of processor performance with an enhanced NuBus® design to allow for six expansion slots. The main system board contains the PowerPC 601 100-MHz CPU and features two NuBus slots, diskette and hard disk controllers, as well as Apple Desktop Bus (ADB), AppleTalk®, SCSI controllers, graphics support circuits, microphone, speaker, printer, Ethernet, and modem ports. The NuBus expander contains four additional NuBus slots.

For information about installing peripheral boards in the Avid Media Processor, see **Chapter 5**.

The base Avid Media Processor system consists of:

- System board with the 100-MHz processor, 8 MB of random-access memory (RAM), 2 MB of video RAM, and the NuBus
- NuBus expander that allows the system to support up to six NuBus slots
- Additional system memory (exact amount depends on configuration)
- 250-MB hard disk (or larger)
- 1.44-MB diskette drive
- 303-watt power supply

The Avid Media Processor can be rack-mounted. A patch panel attached to the rear of the Avid Media Processor converts the standard Apple and Avid connections to industry-standard broadcast connections.

Each channel in a multichannel AirPlay MP requires an Avid Media Processor. For example, a two-channel AirPlay MP system includes three Avid Media Processors. The record, playback, and control channels each have one Avid Media Processor.

Avid System Cabling Guidelines

Please note the following guidelines when setting up the system.

- The configuration of the Avid Media Processor and the disks must be maintained according to the standards described in this guide.

  Rearranging disks without following the standards described in this guide for SCSI cabling, IDs, and termination can cause the system to malfunction.

- Do not use SCSI cables other than those supplied by Avid.

  Avid SCSI cables provide proper impedance matching and deliver the best performance for tested and qualified Avid broadcast system configurations.

- The monitors should be within 25 feet (7.6 meters) of the Avid Media Processor.

  Greater distances degrade the images displayed on the monitors.

- The keyboard and mouse should be within 12 feet (3.6 meters) of the Avid Media Processor.

  The maximum distance is greater when the remote control and GPI connectors on the broadcast panel are not used.

- The Pro Tools unit (audio interface and Video Slave Driver) must be within 12 feet (3.6 meters) of the Avid Media Processor.

  The Pro Tools unit provides the system audio interface to the external user components. If the unit is located more than 12 feet (3.6 meters) away from the Avid Media Processor, the synchronization signal is delayed and will not operated properly.

- The V-LAN VLXi must be within 100 feet (30 meters) of the Avid Media Processor and the decks. Avid supplies a 6 foot (1.83 meter) cable.

  This limit is imposed by RS-422 cable connections requirements.

- The AirPlay MP remote control must be within 10 feet (3 meters) of the Avid Media Processor.

Avid Media Processor Hardware

Figure 4-1 shows the Avid Media Processor's front user controls and the location of the internal drives. Use only 3.5-inch diskettes in the diskette drive.

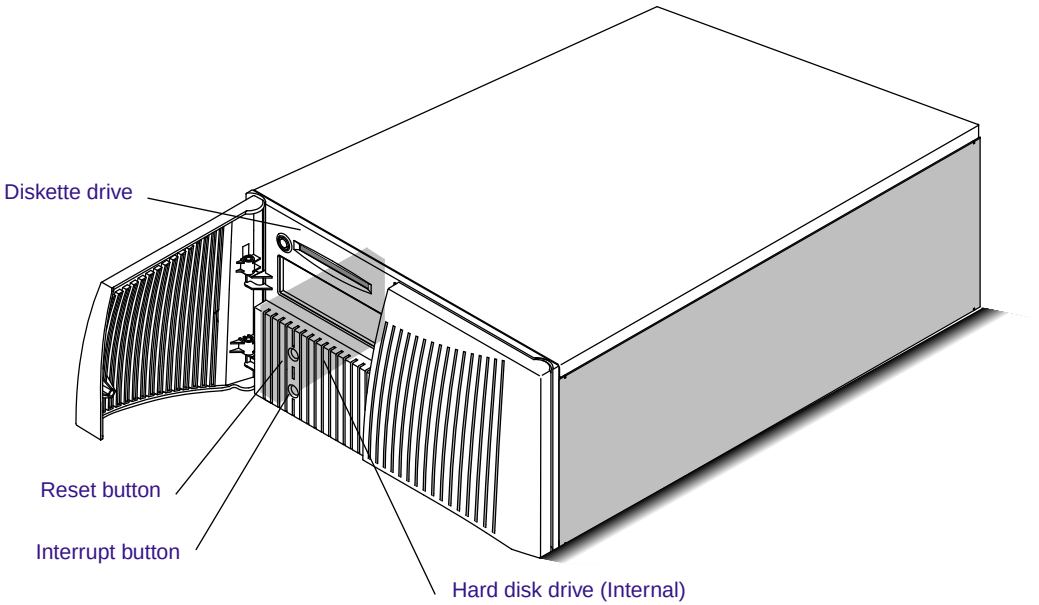


Figure 4-1 Avid Media Processor (Front View)

Figure 4-2 shows the hardware ports located on the back of the Avid Media Processor. This figure shows the analog broadcast panel attached to the Avid Media Processor. Refer to this illustration when connecting the equipment described later in this guide.

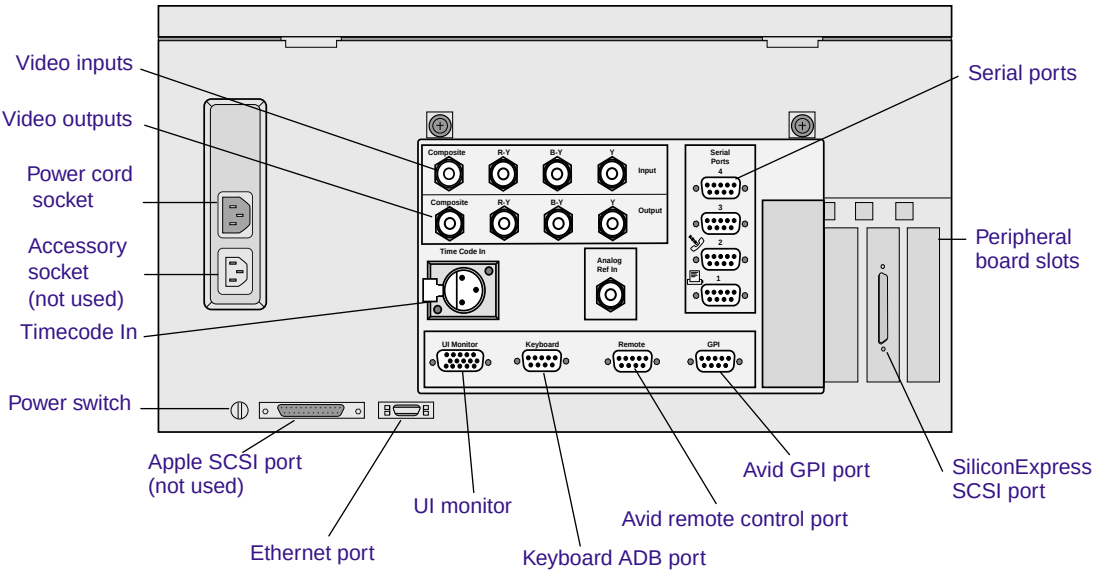


Figure 4-2 Avid Media Processor (Rear View with Analog Broadcast Panel)

One of two possible broadcast panels might be attached to the rear of the Avid Media Processor. The broadcast panel centralizes many external connectors used for attaching the Avid DNG system components. Figure 4-3 shows the digital broadcast panel, Figure 4-4 shows the analog broadcast panel.

See **Chapter 17** *for the broadcast panel connector pin assignments. If connecting your Avid system with older Avid Media Processors, see* **Figure 17-4** *for references to analog and digital connections on the original broadcast panel.*

See **Chapter 5** for information on removing the broadcast panel and the connections to the Avid Media Processor behind the panel.

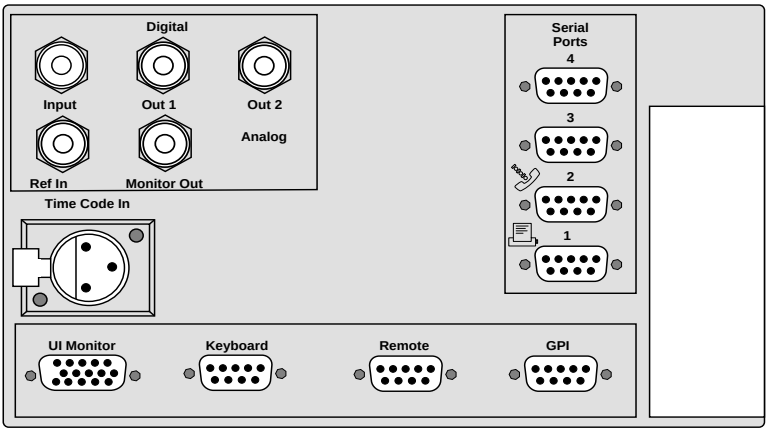


Figure 4-3 Digital Broadcast Panel Connectors

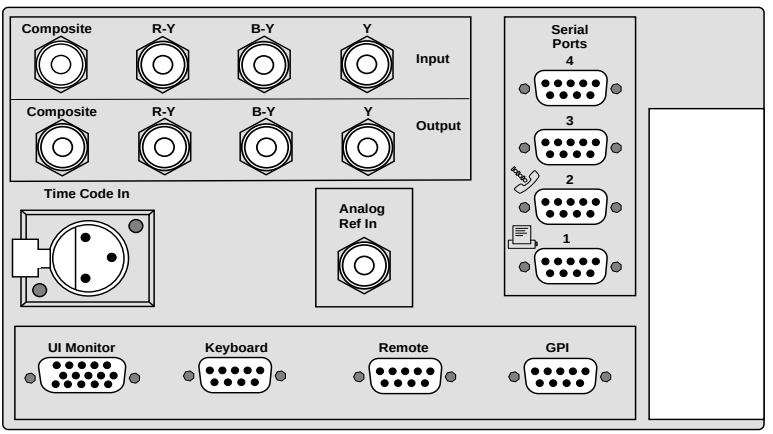


Figure 4-4 Analog Broadcast Panel Connectors

Plugging in the Avid Media Processor

Plug in the Avid Media Processor before connecting anything to it. The plug grounds and protects the Avid Media Processor from electrical damage while you set up the system. Surge protection and an uninterruptible power supply (UPS) are recommended for all systems. Do not turn on the Avid Media Processor until at least the keyboard and UI monitor have been attached.

The Avid Media Processor is equipped with a three-wire grounding plug. As a safety feature, this plug only fits into grounded ac outlets. Contact a licensed electrician to replace the outlet if the Avid plug does not insert into the outlet properly. Avid does not warranty failures due to power sources that do not meet electrical codes.

To plug in the Avid Media Processor:

1. Plug the socket end of the Avid Media Processor's power cord into the recessed power socket.
2. Plug the other end of the power cord into a three-hole grounded outlet or power strip.

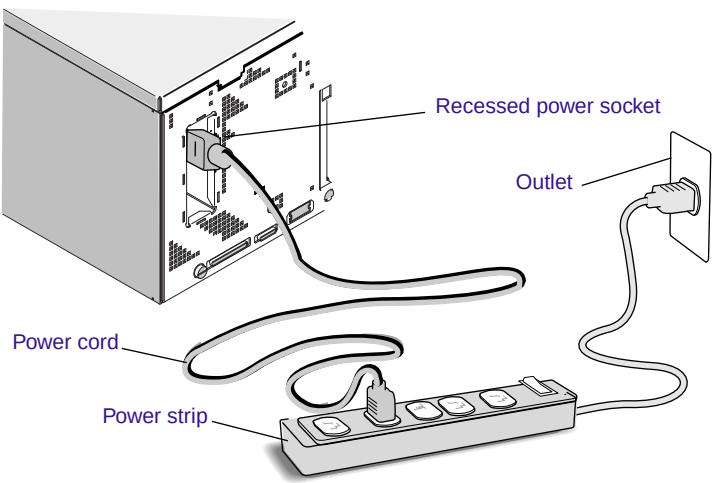


Figure 4-5 Plugging In the Avid Media Processor

Macintosh Basics

The software installed on Avid Media Processor runs by using the Macintosh operating system. After connecting the applicable components to the Avid system (described in the following chapters), learn how to create folders, move files, and perform other system tasks by referencing the online Macintosh Guide.

To access the guide:

1. Click the question mark icon on the Apple menu bar at the top right corner of the screen.
2. Choose Macintosh Guide from the pull-down menu.

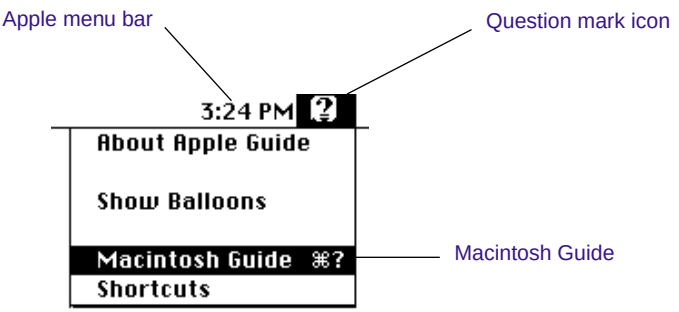


Figure 4-6 Online Macintosh Guide

Peer-to-Peer Networking

Avid offers a peer-to-peer networking solution called the AvidNet™ Transfer Tool. The Transfer Tool provides media transfer and sharing capabilities as well as a standalone application for transferring files between Avid systems. The Transfer Tool might require a network board to be installed in the Avid Media Processor. When specified, an optional network board is preinstalled in Avid systems.

Because of the diversity and complexity of possible network configurations, Avid can only be responsible for the operation of the AvidNet Transfer Tool software. Problems with network hardware or network operation should be addressed by in-house networking personnel or a network consultant.

If your site does not have in-house networking expertise, Avid recommends that you hire a network consultant for the task of setting up, configuring, and maintaining your Ethernet or ATM network site.

For more information, see the *AvidNet Peer-to-Peer Setup and User's Guide*.

CHAPTER 5

Avid Media Processor Hardware

This chapter explains how to install or replace peripheral boards, additional memory, and internal MediaDrives. Avid DNG systems come with the following peripheral boards installed.

NewsCutter – The Avid Broadcast Video Board (ABVB) with analog or serial digital top board, Advanced JPEG board, Pro Tools, and ATTO SiliconExpress IV boards are standard. An optional upgrade is the Advanced JPEG board.

Media Recorder – The ABVB with analog or serial digital top board, Advanced JPEG board, Pro Tools, and SiliconExpress IV boards are standard.

Single-Channel AirPlay MP and AirPlay MP/NewsCutter – The ABVB with analog or serial digital top board, Advanced JPEG board Pro Tools, and SiliconExpress IV expansion boards are standard. Optional upgrade is the SiliconExpress 4D boards.

Multichannel AirPlay MP – The Avid Media Processor for each channel requires a complete set of peripheral boards, including the ABVB with analog or serial digital top board, Advanced JPEG, Pro Tools, and two SiliconExpress boards (Version IV for connecting buffer drives and Version 4D for connecting the shared library of drives).

About Peripheral Boards

Peripheral boards (or expansion boards) inside the Avid Media Processor to record video and audio, store the digital media on drives, and retrieve and play back the media.

Video Board Set

Each video board set includes two boards: a video input/output board and a compression board.

The video input/output board converts analog or serial digital video to digital format for editing, then converts the video back to analog or serial digital format for playback or output to tape. The video input/output board options are:

- ABVB with analog video top board
  - For composite or component analog video input/output
  - Requires analog genlock input
  - Accepts composite or component (Y, R-Y, B-Y) analog video and outputs both
  - Controls both the UI and playback monitor displays

- ABVB with serial digital top board
  - For component serial digital (4:2:2) video input/output (provides one input and two outputs)
  - Does not accept analog video input
  - Provides composite analog monitor output
  - Requires analog video genlock source
  - Controls both the UI and playback monitor displays

The compression board uses an algorithm developed by the Joint Photographic Experts Group (JPEG) to compress the video for storage. Avid Media Processor uses the Advanced JPEG (Janus) compression board to compress the video.

Both the analog and serial digital versions of the ABVB cannot be installed in the Avid Media Processor at the same time. The ABVB provides 720x248 nonsquare pixels per field, which covers all of the active video for NTSC, starting at line 16.

Depending on the running application, vertical interval material (lines 16 through 20) may not be captured.

The ABVB also provides:

- Full motion pop-up monitor playback and millions of colors for the UI monitor.
- Ability to adjust Gain, Setup and Color difference signals on input and output with separate input and output video tools on analog interface systems.
- Separate genlock input for genlocking the video output to an external reference signal.
- A user interface for adjusting genlock settings to facilitate system setup and to allow users to set the system output timing. The resulting digital material is the same, regardless of the video interface used.

Additional Peripheral Boards

In addition to the video boards, a system must include

- The Pro Tools board (also referred to as the sound accelerator or SA4 board) for processing audio.
- The SiliconExpress board, which assists with media storage and retrieval.
    - Version IV (single-ended SCSI) is for connecting fewer drives closer to the Avid Media Processor.
    - Version 4D (differential SCSI) is for connecting more drives farther from the Avid Media Processor.

The Hurdler 4-port serial I/O expansion board might be included for additional serial ports for AirPlay MP. Use the board's four serial ports to connect the Avid Media Processor to additional serial devices (for example, a modem or serial printer).

NuBus Slot Configurations

The Avid Media Processor has six expansion slots designed to accept NuBus peripheral boards. Avid preconfigures the Avid Media Processor with the appropriate peripheral boards to support the application.

The Avid Media Processor has six available NuBus slots:

- Four addressable superslots
- Two regular slots

Although the Avid Media Processor comes preconfigured from Avid, there are certain slot requirements you need to follow when installing additional peripheral boards.

The following Avid peripheral boards must be installed in a superslot:

- ABVB
- Avid compression boards - Advanced JPEG
- FORE Systems® ATM switch

Figure 5-1 identifies the NuBus connectors inside the Avid Media Processor. The bridge board connects the system board to the NuBus extender board. The NuBus extender provides four additional NuBus connectors inside the Avid Media Processor. All peripheral boards are installed into the NuBus connectors.

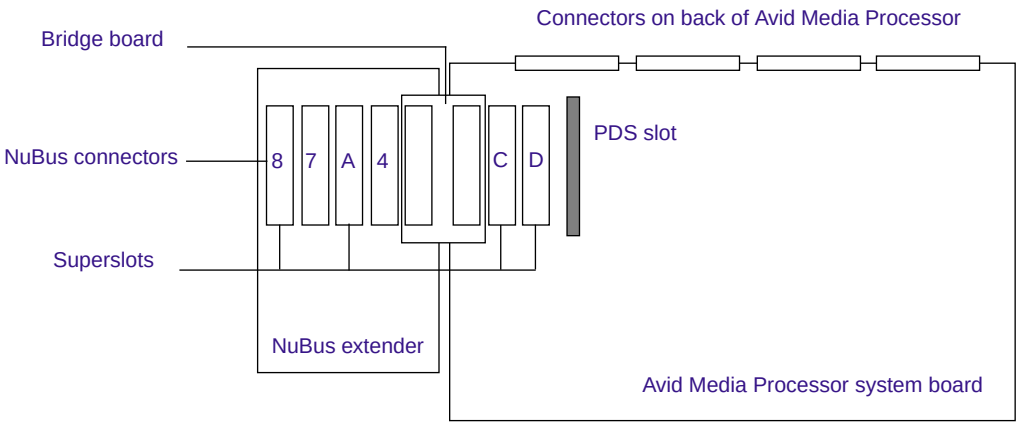


Figure 5-1 NuBus Slot Layout

Table 5-1 outlines the peripheral slot configurations for Avid Media Processor. The slots are hardware set and cannot be changed.

Table 5-1 Avid Media Processor Slot Configurations

Peripheral Board	Slot
Pro Tools audio (SA4)	Slot 8
SiliconExpress IV (single-ended) or SiliconExpress 4D (differential) boards	Slot 7
ATM switch or second SiliconExpress board	Slot A
Hurdler serial port expander board (legacy AirPlay MP only)	Slot 4
ABVB	Slot C
Advanced JPEG board	Slot D

NuBus Power Requirements

The combined power consumption of NuBus boards in an Avid Media Processor must not exceed 20.0 amperes. If installing additional NuBus boards, make sure the total power consumption does not exceed the total available power. Table 5-2 list the power consumption for each Avid peripheral board.

Table 5-2 NuBus Slot Power Usage

NuBus Board	+5 Volt Power Usage
SiliconExpress IV or 4D boards	3.0 A
Advanced JPEG board	2.73 A

Table 5-2 NuBus Slot Power Usage (Continued)

NuBus Board	+5 Volt Power Usage
ABVB w/analog top board	2.62 A
ABVB w/digital top board	2.52 A
Hurdler serial port expander board	1.24 A
Pro Tools audio (SA4)	1.8 A
100Base-T adapter	0.8 A
FORE Systems ATM Switch	2.5 A

Exceeding the maximum power consumption could damage the peripheral boards, Avid Media Processor, or both.

Broadcast Panel and Cover Removal

Remove the Avid Media Processor cover only if:

- Adding or replacing peripheral boards
- Adding or replacing expansion memory
- Replacing an internal MediaDrive

All Avid Media Processors have a broadcast connector panel attached to the rear of the Avid Media Processor. The broadcast panel centralizes the external connections for the Avid Media Processor. If replacing the ABVB, you must first remove the broadcast panel.

To remove the broadcast panel and cover:

1. Turn off the Avid Media Processor.
2. Label and disconnect all cables connected to the broadcast panel.

Even if not removing the broadcast panel, unplug the keyboard to prevent accidently turning on the Avid Media Processor.

3. Remove the broadcast panel as follows. If the panel does not need to be removed, go to step 4.
   a. Loosen the two panel thumbscrews that hold the broadcast panel to the rear of the Avid Media Processor (see Figure 5-2).
   b. Tilt the panel away from the Avid Media Processor and lift the mounting tabs out of their slots in the rear panel.

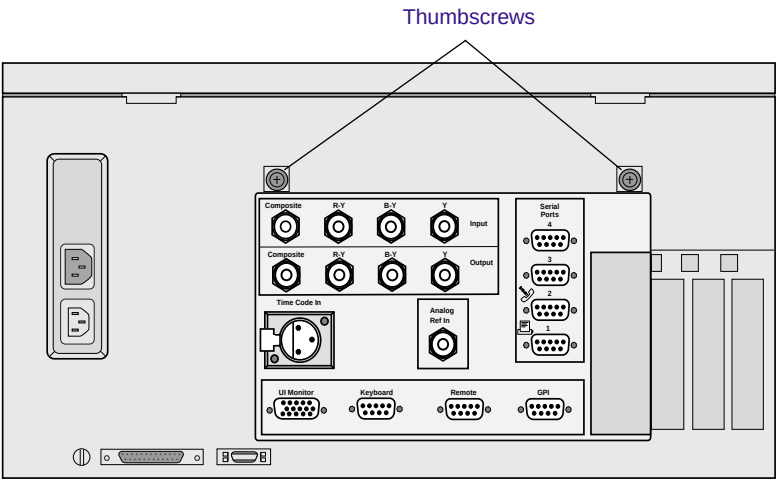


Figure 5-2 Removing the Broadcast Panel

c. Disconnect the appropriate cables between the Avid Media Processor and the broadcast panel (see Figure 5-3).

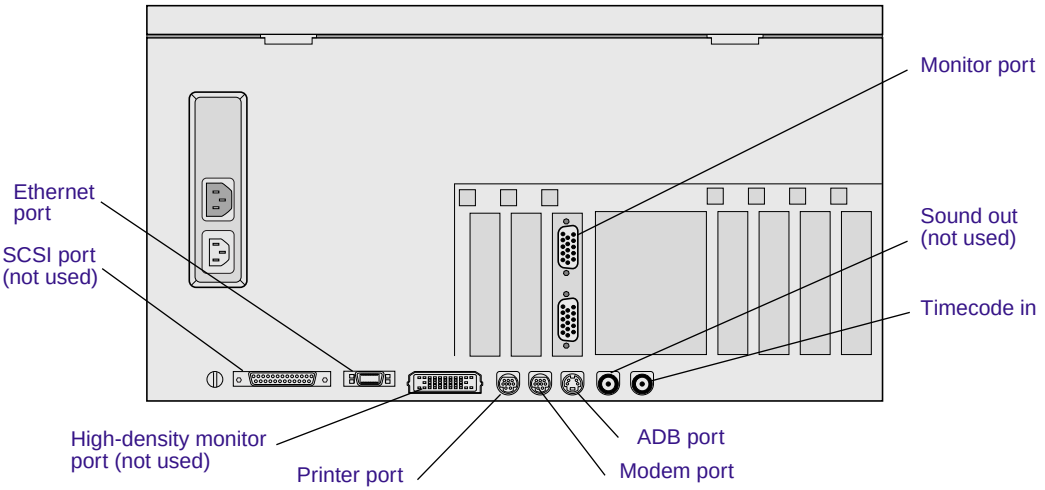


Figure 5-3 Connectors When Broadcast Panel Is Not Attached

4. Open both front doors (see Figure 5-4).

   a. Pull open the left door by gripping it from the bottom of the door.

   b. Release the two tabs on the right door and pull open.

5. Loosen the two captive screws that secure the top cover (shown in Figure 5-4) by turning them counterclockwise.
6. Remove the top cover from the Avid Media Processor.

   Lift the front of the cover upward and pull to release it from the retaining slots in the rear of the Avid Media Processor.

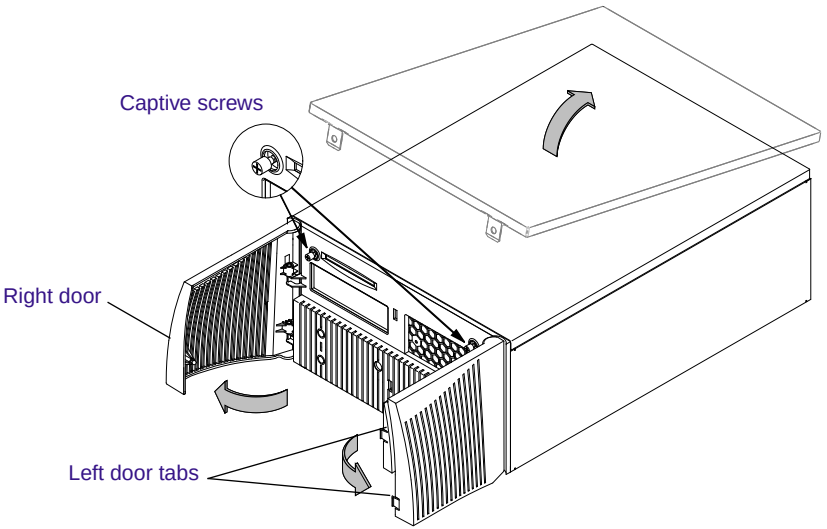


Figure 5-4 Removing the Top Cover

7. Put on a wrist strap and attach the ground clip to the Avid Media Processor chassis (see Figure 5-5). You are grounded properly only if the Avid Media Processor is plugged in.

   Always do this before you touch any parts or install components inside the Avid Media Processor.

Semiconductor devices are vulnerable to damage by electrostatic discharge (ESD). Use an ESD wrist strap or other grounding device to ensure against electrostatic discharge.

Do not dislodge any of the copper EMI strip material in the chassis. Look for any missing segments before replacing the cover.

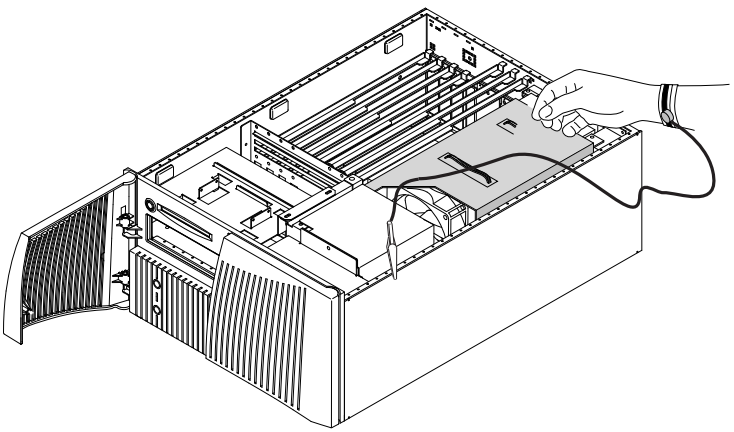


Figure 5-5 Discharging Static Electricity

Installing Peripheral Boards

This section explains how to install NuBus boards or to install an additional Avid peripheral board (such as an additional drive controller) in the Avid Media Processor.

Only use NuBus boards designed specifically for the Avid Media Processor as described under "NuBus Slot Configurations" on page 81. Rearranging factory-installed NuBus peripheral boards may result in configurations that do not function properly.

Follow these steps if installing a NuBus peripheral board:

1. Remove the top cover from the Avid Media Processor.

   Use the procedure described in "Broadcast Panel and Cover Removal" on page 84 to remove the cover.

2. Discharge any static electricity by touching the power-supply case or use an ESD wrist strap.

3. Remove the rear metal slot cover and the board hold-down rail for the slot.

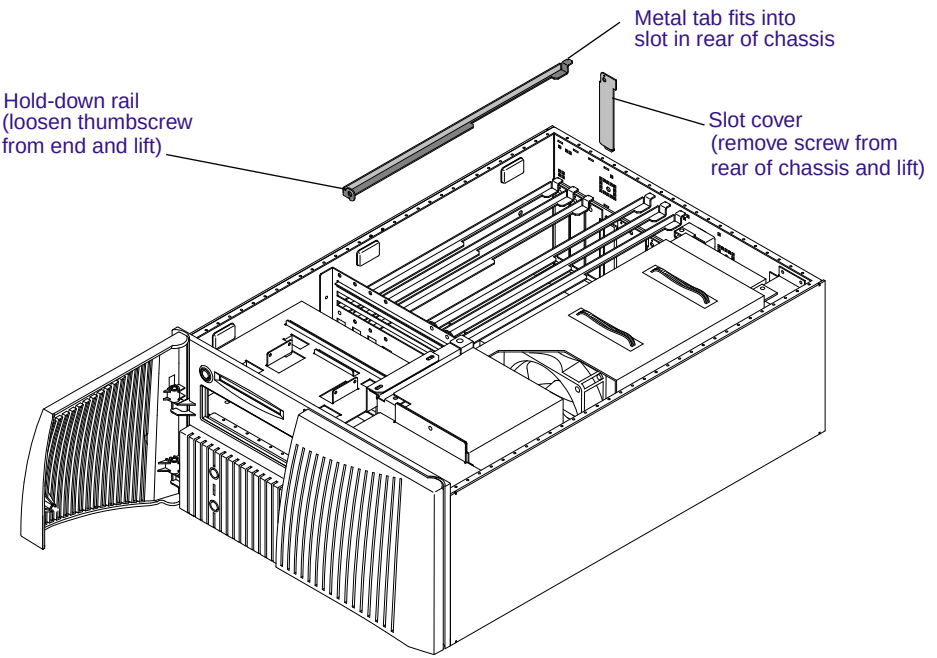


Figure 5-6 Removing Slot Covers and Hold-Down Rails

4. Remove the board from its staticproof bag.

   Hold the board by its outer edges to avoid touching the connector on the bottom of the board.

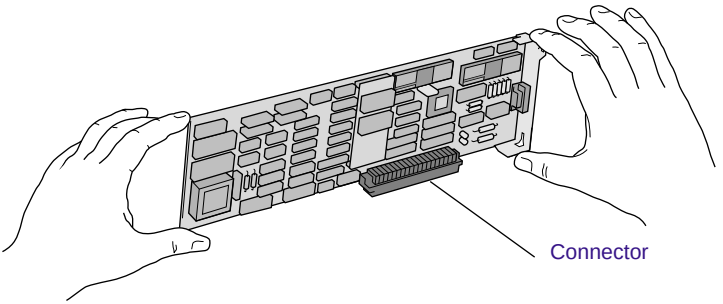


Figure 5-7 Handling NuBus Boards

5. Align the connector end of the board with the NuBus connector in the Avid Media Processor (see Figure 5-8).

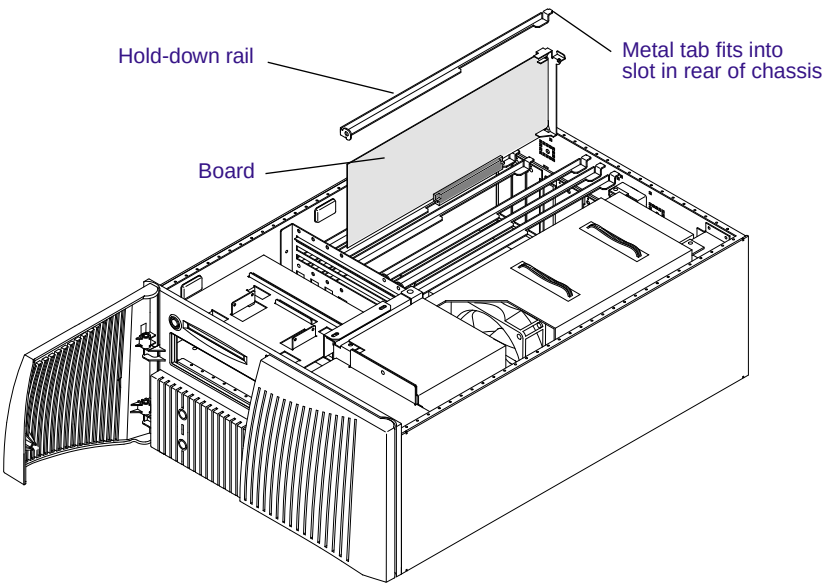


Figure 5-8 Aligning the Peripheral Board

6. Press the board firmly until the connector is seated.

   Do not force the board. If you meet with a lot of resistance, pull it out, inspect the connector pins, and try again.

7. Install the board hold-down rail.
8. Replace the broadcast panel if you removed it.
   a. Reconnect any cables that you disconnected. For details see Table 5-3.
   b. Carefully place the excess cables into the broadcast panel, making sure they do not bind.
   c. Hook the mounting tabs in their slots in the rear panel.
   d. Tighten the thumbscrews.

Some broadcast panels do not use all of the cables listed in Table 5-3.

Table 5-3 Broadcast Panel Cable Connections

Cable	Connection
Analog video cable	Connects to the bottom connector on the ABVB with analog I/F board. (Leave disconnected when using the digital I/F board.)
Digital video cable	Connects to the bottom connector on the ABVB with digital I/F board. (Leave disconnected when using the analog I/F board.)
UI monitor cable	Connects to the top connector on the ABVB.
Remote ADB cable	Connects to the ADB port below the panel.
SIO cable 1 (Printer)	Connects to the Apple printer port below the panel.
SIO cable 2 (Modem)	Connects to the Apple modem port below the panel.
SIO cable 3	Connects to the top connector of the serial expander board.

Table 5-3 Broadcast Panel Cable Connections (Continued)

Cable	Connection
SIO cable 4	Connects to the second connector of the serial expander board.
SIO cable 5	Connects to the third connector of the serial expander board.
SIO cable 6	Connects to the bottom connector of the serial expander board.
Timecode cable	Connects to the Apple microphone IN connector below the panel.

9. Replace the Avid Media Processor top cover and tighten the top cover screws.

   You might have to press the top cover to align the screws and holes properly.

10. Reconnect any cables previously disconnected from the broadcast panel.

Expanding Memory

The RAM in the Avid Media Processor can be expanded by adding single inline memory modules (SIMMs) to those already installed or by exchanging installed modules for ones that have greater storage capacity.

Make sure the SIMMs you purchase for memory expansion are the correct SIMMs for the Avid Media Processor. The Avid Media Processor uses the same SIMMs as a Power Macintosh 8100 system. SIMMs for the Avid Media Processor must be installed in pairs of the same size into paired slots.

Avid recommends using only Macintosh approved 70-ns SIMMs.

To install SIMMs in the Avid Media Processor:

1. Remove the top cover from the Avid Media Processor.

   Use the procedure described in **"Broadcast Panel and Cover Removal" on page 84** to remove the cover.

2. Discharge any static electricity by touching the power-supply case.

3. Put on a wrist strap and attach the ground clip to the Avid Media Processor chassis (see Figure 5-5). You are grounded properly only if the Avid Media Processor is plugged in.

Semiconductor devices are vulnerable to damage by electrostatic discharge (ESD). Use an ESD wrist strap or other grounding device to ensure against electrostatic discharge.

4. Disconnect the external power cord from the rear of the system.

5. Dislodge the power harness as shown in Figure 5-9, but leave the connector attached.

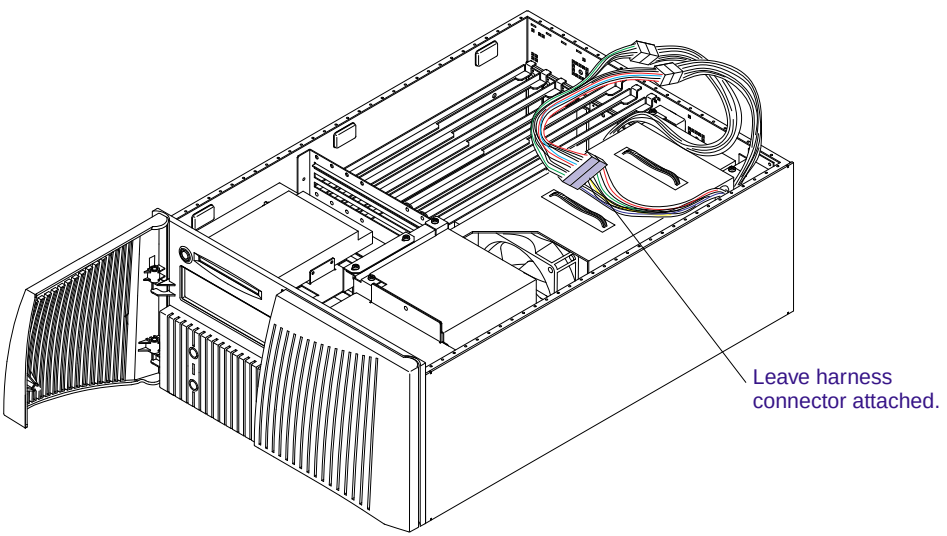


Figure 5-9 Dislodging the Power Harness

6. Loosen the two captive screws that secure the air baffle as shown in Figure 5-10.

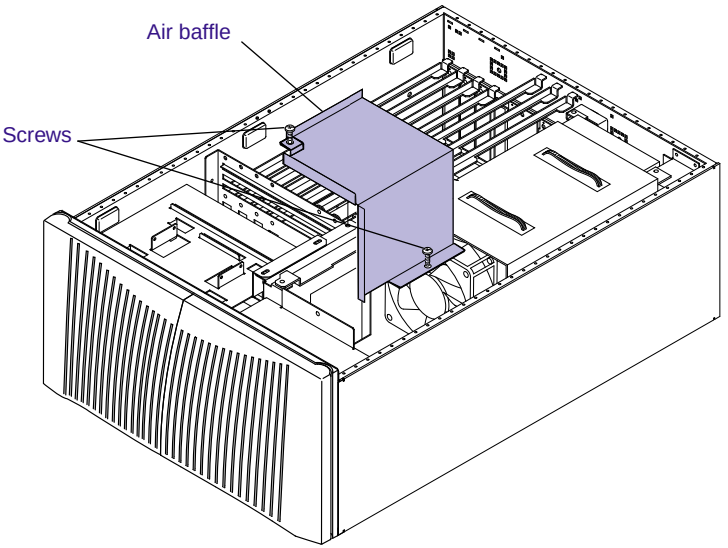


Figure 5-10 Removing the Air Baffle

7. Pivot the power supply up as shown in Figure 5-11.

   Use care when lifting the power supply to ensure the drive and fan power cables connected to power sockets are not stressed. If these are stressed, disconnect them from the power supply. Be sure to reconnect them before powering on the Avid Media Processor.

Check to see that the power supply uplock falls into place before letting go of the power supply. The power supply uplock is located on the left side of the power supply toward the rear.

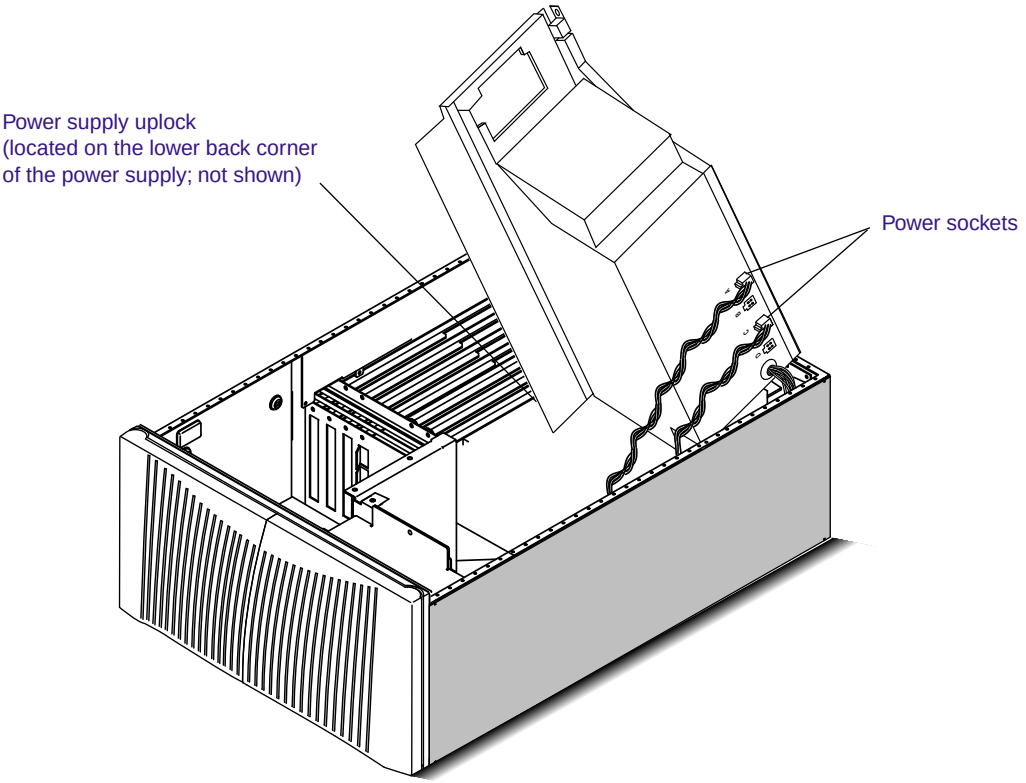


Figure 5-11 Moving the Power Supply

8. Install the new SIMMs as shown in Figure 5-12.

   SIMMs must be installed in identical pairs, in the slots marked on the system board. First pair, second pair, and so on (order or blank slot pairs do not matter).

   Insert the SIMM into the slot on a 45-degree angle, then rotate the SIMM to the upright position until it snaps into place. If there seems to be too much resistance, do not force the SIMM. Reinsert it and try again.

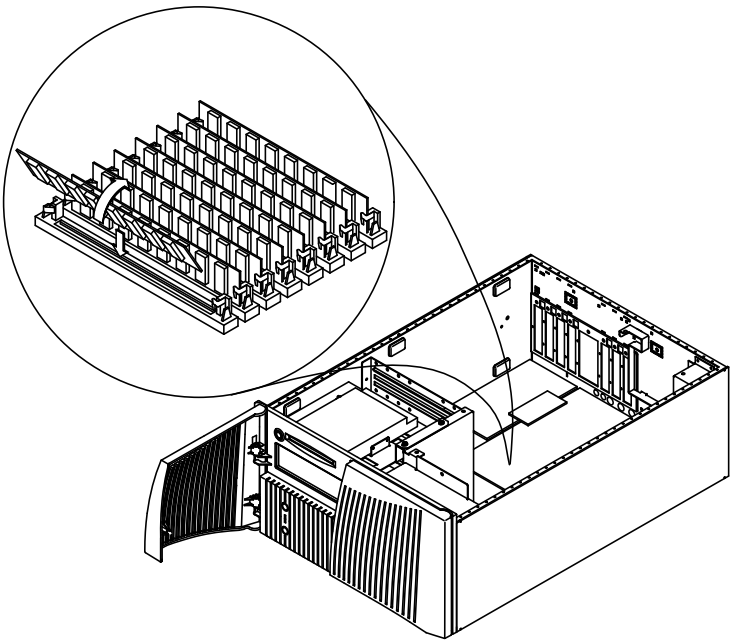


Figure 5-12 Installing SIMMs

9. Raise the power supply slightly and hold the uplock out of the way.
10. Lower the power supply and return the power harness to its former location.

Before lowering the power supply, ensure the fan's power cable is securely connected to power socket A on the power supply. Proper air flow is critical to system performance.

11. Replace the air baffle.
12. Replace the Avid Media Processor top cover and tighten the top cover screws.

    You might have to press the top cover to align the screws and holes properly.
13. Reconnect any cables previously disconnected from the broadcast panel.

Servicing Internal MediaDrives

Your Avid Media Processors might have two internal 9-GB MediaDrives installed. The internal MediaDrives are only installed by Avid Manufacturing.

The internal MediaDrives are mounted on a modified bracket that now secures the two MediaDrives and the diskette drive. Reference this procedure if replacing an internal MediaDrive or its components.

If connecting external MediaDrives to the same SiliconExpress IV board that the internal MediaDrives are connected to, use SCSI IDs 2 through 6. The internal MediaDrives use SCSI IDs 0 and 1.

The following describes the complete procedure for replacing an internal MediaDrive and components. To remove the drive bracket and install an internal MediaDrive:

1. Remove the Avid Media Processor top cover as described in **"Broadcast Panel and Cover Removal" on page 84**.

2. Loosen the captive screw that secures the drive mounting bracket to the chassis as shown in Figure 5-13.

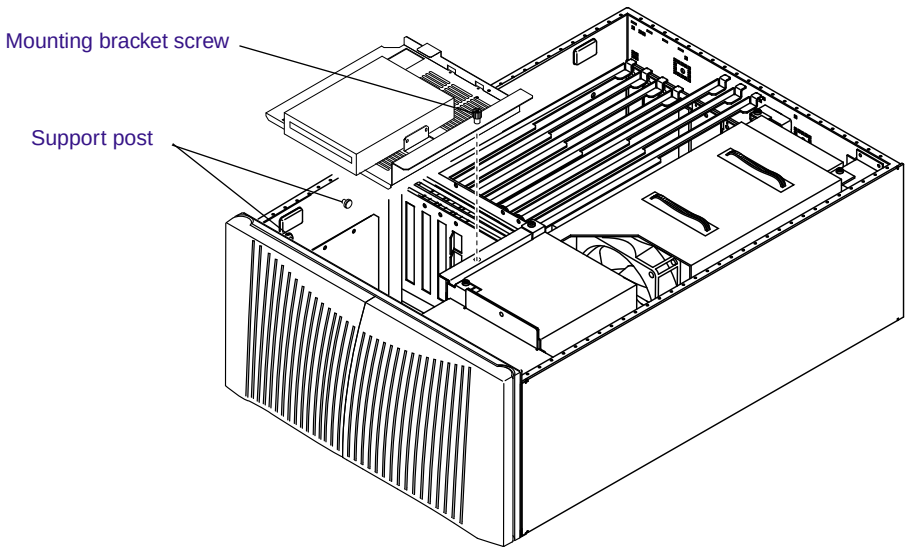


Figure 5-13 Removing the Drive Bracket Assembly

3. Slide the bracket assembly toward the rear of the unit until the assembly clears the support post.
4. Lift the assembly out of the chassis.

   There should be enough slack in the diskette drive cables so that the assembly can be raised out of the unit.

5. Remove the four screws securing the diskette drive to the bracket assembly as shown in Figure 5-14 and remove the diskette drive.

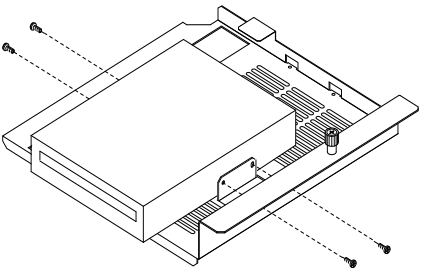


Figure 5-14 Diskette Drive Screws

6. Position the MediaDrives so that the drive bracket holes match up with the screw holes in the drive.
7. Secure each MediaDrive to the bracket assembly as shown in Figure 5-15 with four screws.

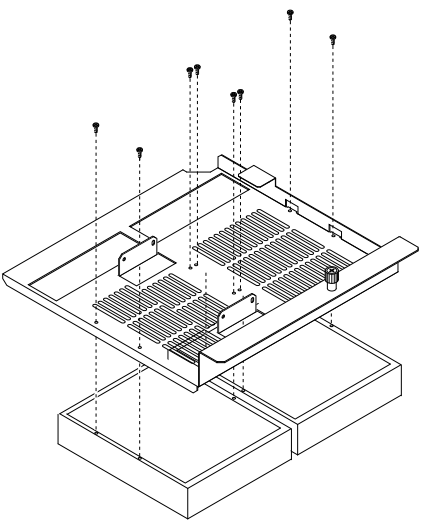


Figure 5-15 MediaDrive Screws

8. Reattach the diskette drive to the bracket assembly.
9. Connect the power and SCSI signal cables through the drive bracket to the MediaDrives as follows (see Figure 5-16).

The SCSI signal cable provides four SCSI connectors. The end of the SCSI cable that has the SCSI connector farthest away from the other three connectors must be connected to the SiliconExpress IV board.

   a. Connect the MediaDrives to the middle two SCSI signal cable connectors.
   b. Connect the drive power cables to the MediaDrives.
   c. Connect a SCSI terminator to the SCSI cable end closest to the MediaDrives.

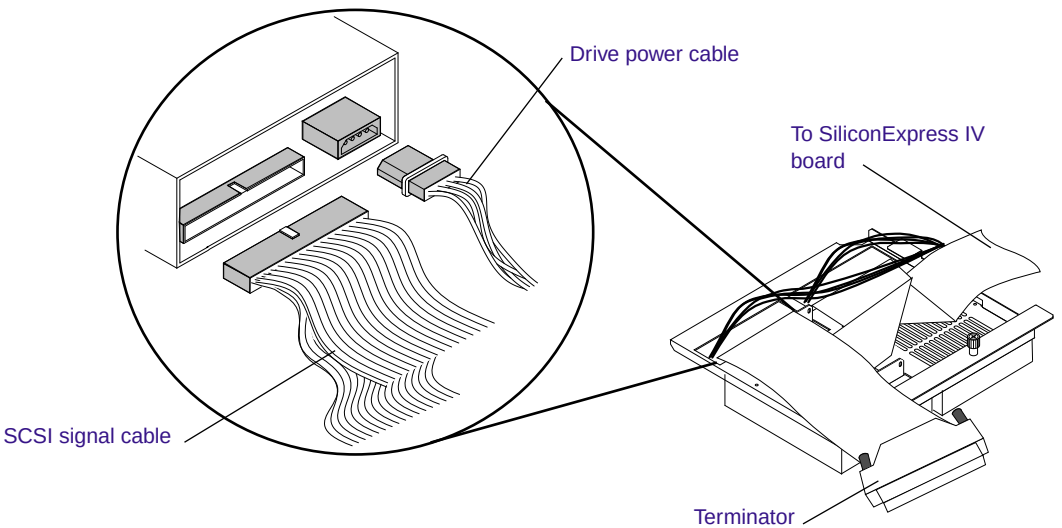


Figure 5-16 Connecting the MediaDrive Cables

10. Reinstall the diskette drive removed earlier and be sure to reattach the diskette drive cables if they were removed.

11. Lower the bracket assembly onto the support post in the chassis. Slide the assembly forward until the diskette drive is flush against the front bezel.
12. Tighten the captive screw that secures the bracket assembly.

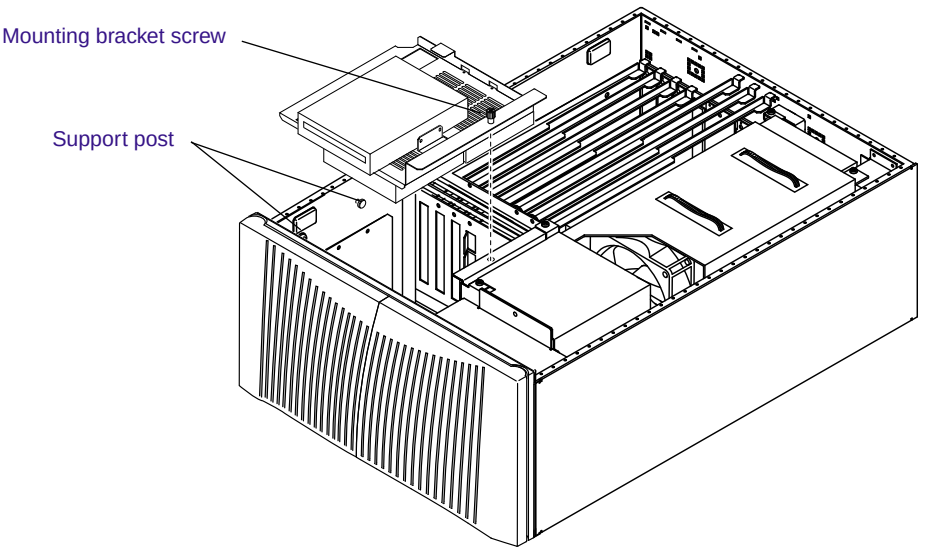


Figure 5-17 Removing the Drive Bracket Assembly

13. Locate the SiliconExpress IV board.
14. Remove the board hold-down rail and lift the SiliconExpress IV board out of the chassis.

15. Connect the remaining end of the SCSI signal cable to the connector on the SiliconExpress IV board as shown in Figure 5-18.
16. Remove the three terminators from the SiliconExpress IV board.

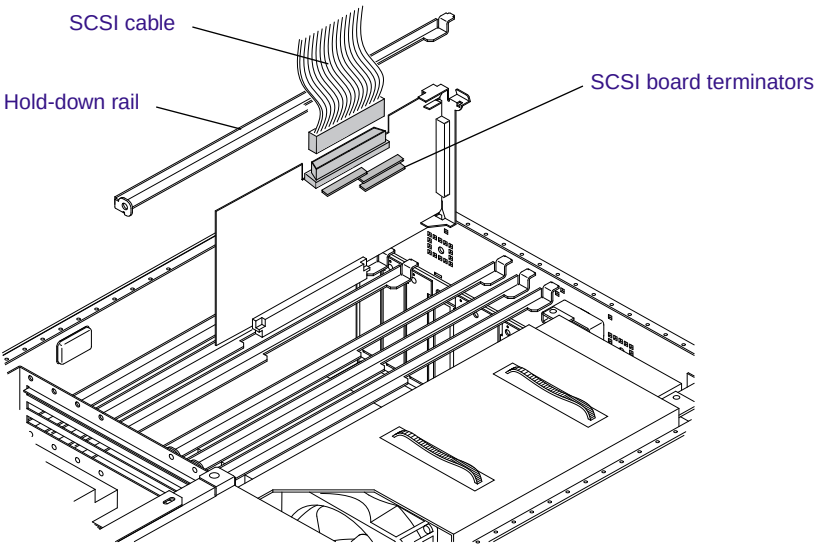


Figure 5-18 Internal SCSI Cable Connection and Terminators

Route the cable to minimize front-to-rear air flow disruption.

17. Reinstall the SiliconExpress IV board in its NuBus slot.
18. Install the board hold-down rail.

19. Connect the loose end of the MediaDrive power cable to power socket D on the power supply as shown in Figure 5-19.

If the access to the power socket is tight, see ***"Expanding Memory" on page 92*** *for information on how to raise the power supply and gain more access to the socket.*

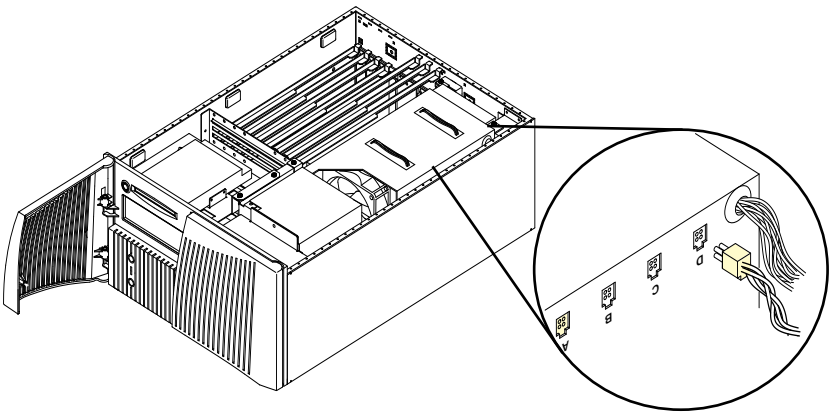


Figure 5-19 Connecting the MediaDrive Power Cable to the Supply

20. Replace the Avid Media Processor top cover and tighten the top cover screws.

    You might have to press the top cover to align the screws and holes properly.

21. Reconnect any cables previously disconnected from the broadcast panel.

CHAPTER 6

User Control and Serial Device Connections

This chapter provides information on installing user control and serial devices. Standard user control devices for all systems include a keyboard, mouse, and dongle. Specific devices for Avid systems are listed as follows.

NewsCutter – A modem is standard, a customer-supplied printer is optional.

Media Recorder – A modem and a customer-supplied printer are optional.

Single-Channel-With-Record AirPlay MP – Each channel is connected to a keyboard, mouse, and dongle. An Avid remote control is optional.

Single-Channel AirPlay MP and AirPlay MP/NewsCutter Combination – A modem, printer, and Avid remote control are optional.

Multichannel AirPlay MP – The control channel has a keyboard, mouse, and dongle. For centralized control of the system, an Avid remote control is optional. (For example, the control channel can build playlists for all three playback channels.)

To connect each record and playback channel to a dongle and a record/engineering workstation, see **Chapter 10**.

Control and Serial Devices

The control devices not only provide security, but are used to input and operate Avid DNG systems. Use serial devices to transfer information to or from the system.

Control Devices

These control devices are used to operate the Avid broadcast system:

- Dongle

  Prevents unauthorized access to the system; this copyright protection device is required to run the software.

- Keyboard

  For typing commands; color keycaps show the commands mapped to each key.

- Mouse

  Selects and moves items shown in the visual user interface displayed on the UI monitor.

- Avid remote control (optional for NewsCutter and AirPlay MP)

  For controlling an AirPlay MP system from a distance; provides buttons for the playback functions.

Serial Devices

The following serial devices connect to the serial port and allow you to transfer information to and from the system:

- Modem

  For communicating with the Avid Bulletin Board System, which provides technical tips and information, and allows you to send feedback to Avid directly.

- Customer-supplied printer

  For printing paper copies of system data, such as the information stored in bins or playlists.

Connecting User Control Devices

Figure 6-1 shows the connections for a a keyboard, mouse, and dongle. Dongles are required to gain access to Avid system software.

Never connect or disconnect the mouse or the keyboard while the Avid Media Processor is on. Disconnecting the mouse or keyboard can damage the system board.

Trackballs and other input devices that were specifically designed to work with the Macintosh can be installed instead of a mouse, as shown in Figure 6-1 and Figure 6-2.

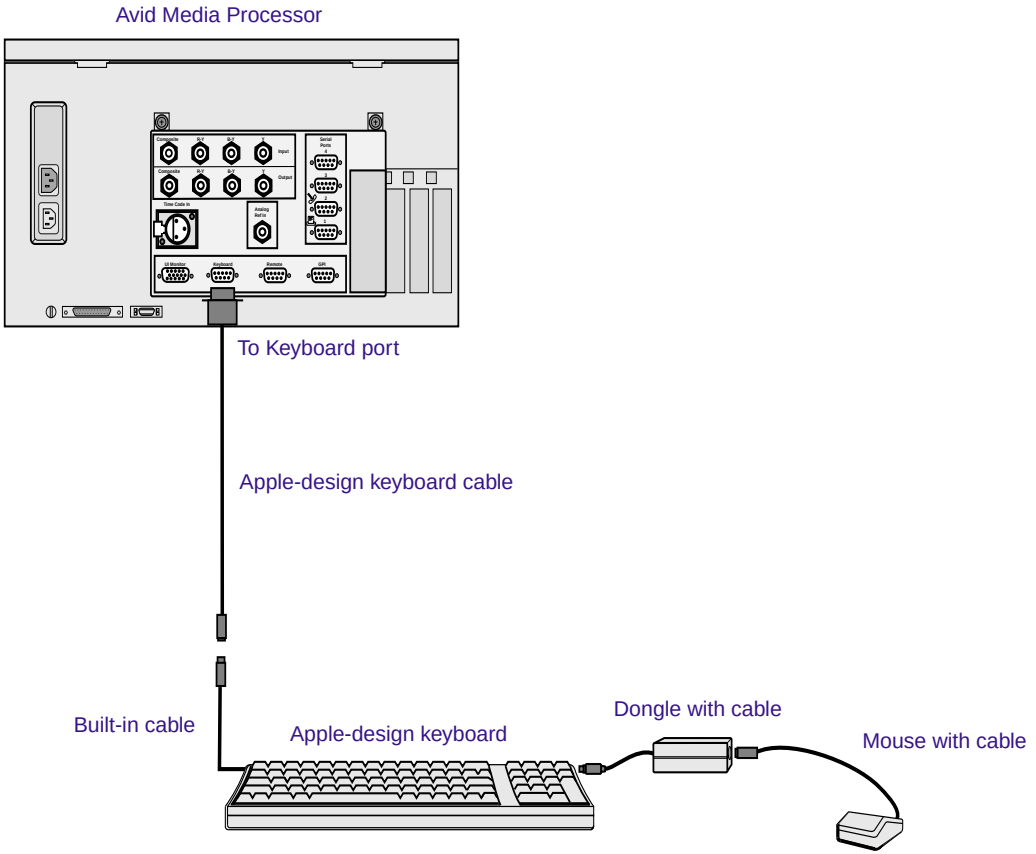


Figure 6-1 User Control for NewsCutter and Media Recorder

Figure 6-2 shows the connections for a a keyboard, mouse, dongle, and an Avid remote control for AirPlay MP systems. An Avid remote control can be connected directly to any channel on multichannel AirPlay MP but not to the NewsCutter, Media Recorder, or user interface ADB switch.

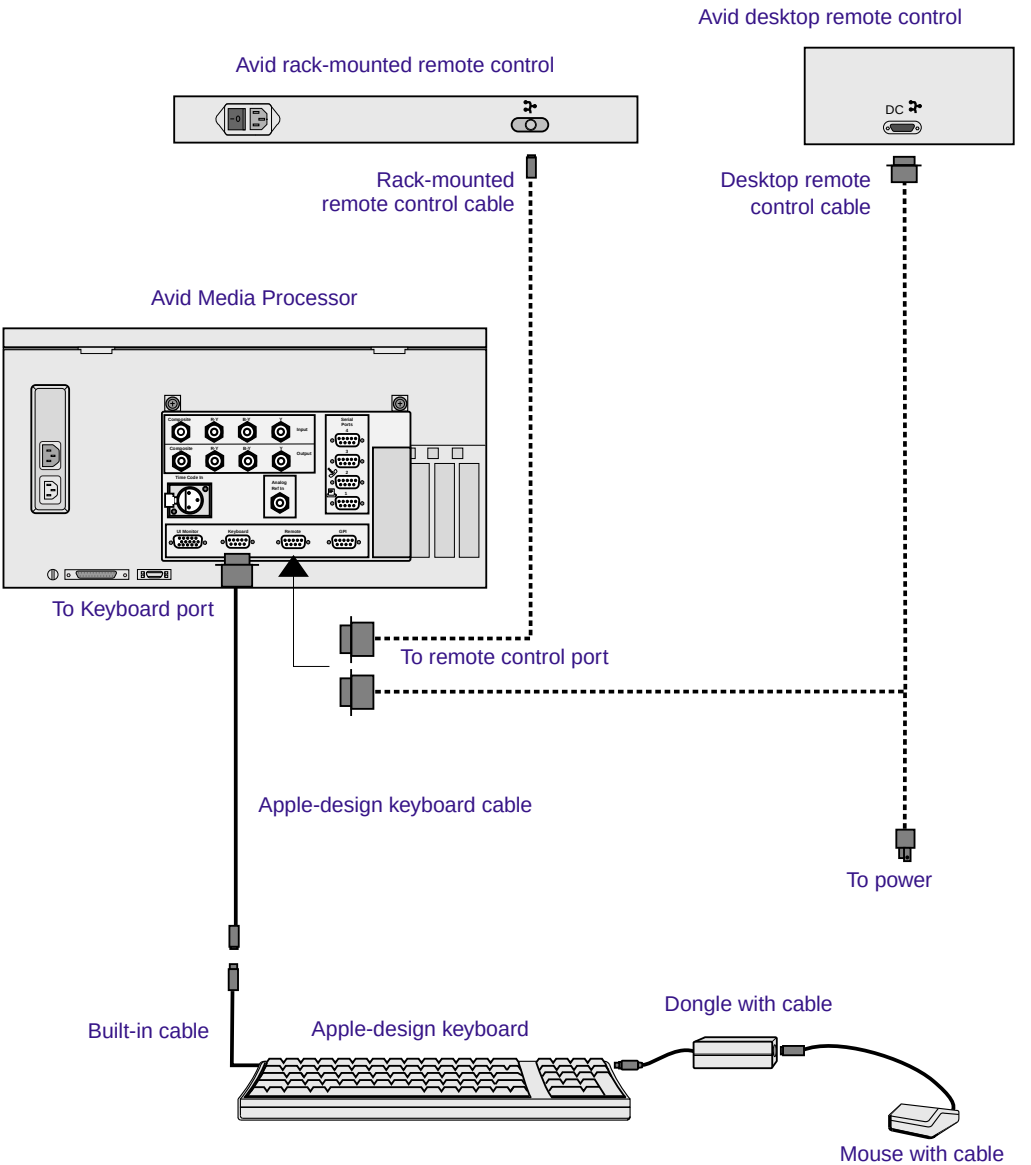


Figure 6-2 User Control for Single- and Multichannel AirPlay MP and AirPlay MP/NewsCutter

Connecting Serial Devices

Figure 6-3 shows how to install a modem and a customer-supplied printer.

When using the modem, turn off AppleTalk (NewsCutter requires that AppleTalk always be off). Select Chooser from the Apple menu. At the bottom of the Chooser window, click the Inactive button under AppleTalk.

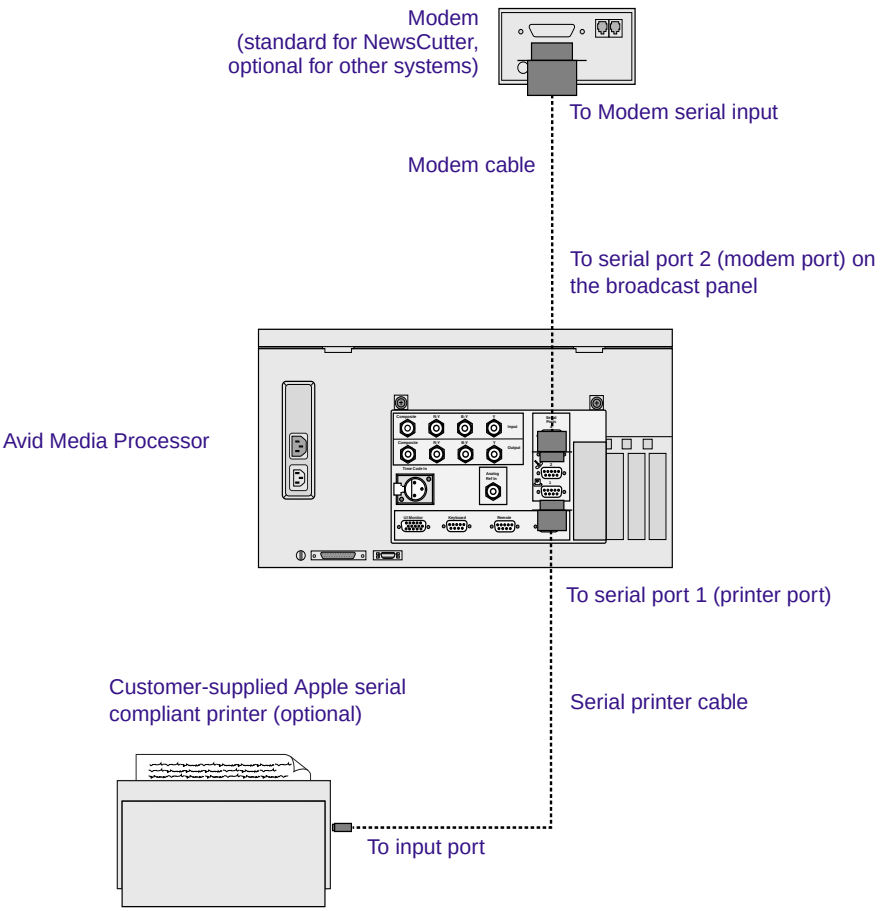


Figure 6-3 Serial Connections

Using AirPlay MP Remote Controls

The remote control is a user interface that operates AirPlay MP from a remote location. Figure 6-4 shows the desktop remote control and Figure 6-5 shows the rack-mountable version.

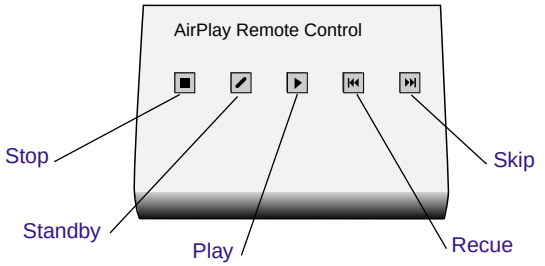


Figure 6-4 Desktop AirPlay MP Remote Control

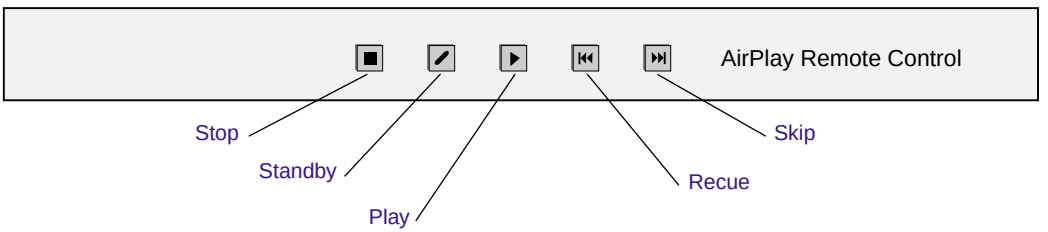


Figure 6-5 Rack-mounted AirPlay MP Remote Control

CHAPTER 7

Video, Decks, and GPI Control Connections

This chapter provides information on the video input/output and GPI control connections for Avid systems. All systems include UI and playback monitors and require a video reference signal. All DNG systems can connect to a deck or other video device.

Information on compatible decks is listed in **Chapter 18**. *Video input and output connections are made to the Avid Broadcast Video Board (ABVB); see* **Chapter 5** *if installing the ABVB.*

NewsCutter – The system ships with a UI monitor. Playback monitors are customer-supplied. Support for GPIs is optional.

Media Recorder – The system ships with a UI monitor and a customer-supplied playback monitor. Support for GPIs is not an option.

Single-Channel AirPlay MP – The system ships with a UI monitor. Playback monitors are customer-supplied. Support for GPIs is optional.

Single-Channel-With-Record AirPlay MP – Each channel ships with a UI monitor. Playback monitors are customer-supplied.

Multichannel AirPlay MP – Each record and playback channel uses a customer-supplied playback monitor for displaying the video recorded or edited on that channel. These record and playback channels are also connected to a record/engineering workstation which provides the UI monitor for one channel at a time.

The control channel has a UI monitor for displaying the central user interface. Support for GPIs is optional. For instructions on connecting multichannels, see **Chapter 10**.

About Video Connections

This chapter describes how to connect the system to:

- Video input and output from decks, feeds, routers, or satellite receivers
- Monitors
- Control for decks or other external video devices
- Reference signal

Video Input and Output

Video devices are connected to the ABVB, which is installed in the Avid Media Processor, to input and output video signals. Depending on the daughter board installed on the video board, the system accepts either component serial digital or analog (composite and/or component) video.

Monitors

This chapter describes how to connect two types of monitors. The Avid-supplied UI monitor displays a command menu bar for operating the system and bins for organizing source clips and edited stories. A customer-supplied playback monitor displays incoming video when the system is recording or edited material during playback.

Both monitors are connected to the ABVB, which is installed in the Avid Media Processor.

Control for Decks and Other External Devices

These control systems allow the DNG system to operate attached decks or external video devices:

- Deck control hardware

  Two types of deck control hardware are available for controlling the operation of a deck from within an Avid DNG system:

  - A serial direct deck control cable links the Avid Media Processor directly to a deck that supports Avid direct serial protocol.
  - Video local area network (V-LAN VLXi) deck controllers link the Avid Media Processor to a deck. V-LAN VLXi deck controllers do not support Avid direct serial protocol.

- General-purpose interface (GPI) triggers

  GPIs trigger special effects, such as character generation or special video effects.

Reference Signal

All systems require an analog video reference signal. The video reference signal must be provided to several of the system components and meet the standard NTSC or PAL specifications. See **"Connecting a Reference Signal" on page 119**.

Connecting Monitors and Video Input/Output

Figure 7-1 shows how to connect the UI monitor to an analog broadcast panel. Figure 7-2 shows how to connect the UI monitor and video deck to a digital broadcast panel and the customer-supplied playback monitor. These diagrams also show how to connect video input and output from decks, satellite feeds, or routers.

See **"Connecting a Reference Signal" on page 119** to connect the black burst generator or house reference video source after connecting the monitor and video I/O.

*After starting the system, adjust the monitor setup using the Monitor control panel. See **"Configuring the Monitor" on page 117**.*

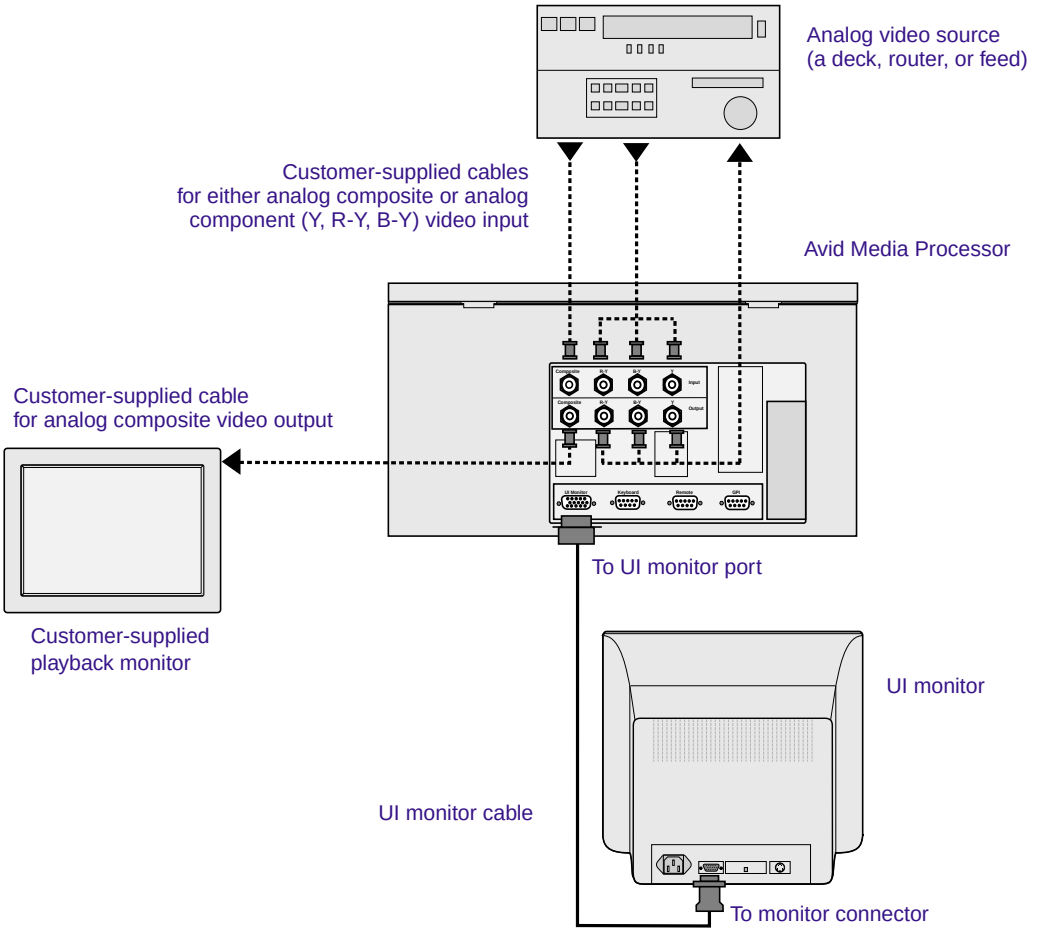


Figure 7-1 Video I/O for Analog Broadcast Panel

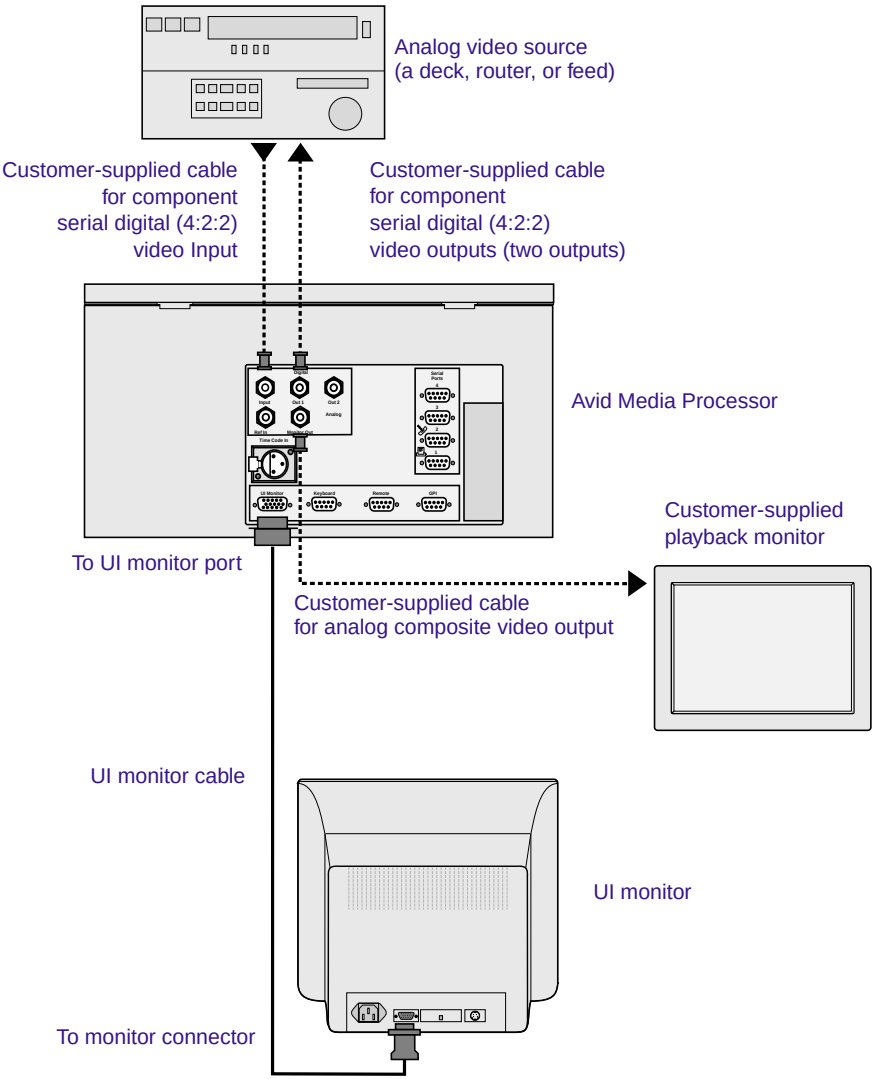


Figure 7-2 Video I/O for Digital Broadcast Panel

Configuring the Monitor

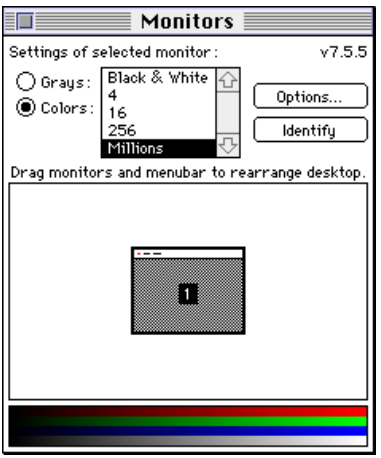
When turning on the Avid Media Processor for the first time or after reconfigure the ABVB, use the Monitor control panel to select the monitor color settings.

1. Choose Control Panels from the Apple menu.

   A window opens.

2. Double-click Monitors.

   A window similar to the following opens.



3. Select the monitor settings:

   a. Select Colors by clicking the circle beside Colors.

   b. Highlight Millions for the number of colors.

4. Restart the Avid Media Processor for these changes to take effect.

Connecting Deck Control

This section explains how to control a deck using either:

- A serial control cable to link the Avid Media Processor directly to a deck that supports Avid direct serial protocol (see Figure 7-3).
- V-LAN VLXi deck controllers to link the Avid Media Processor to a deck that does not support Avid direct serial protocol (see Figure 7-4).

For a list of decks shown in the following figures that can be connected to the system using a serial control cable or using V-LAN VLXi, see **Chapter 18**.

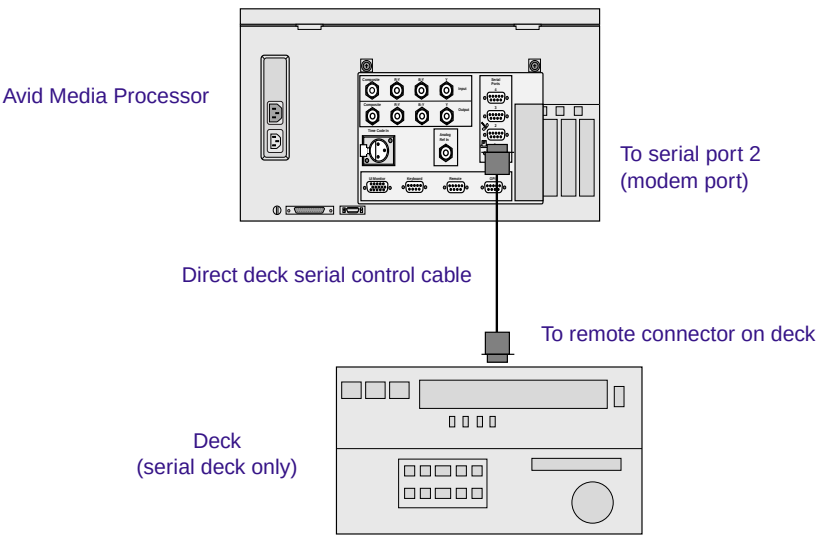


Figure 7-3 Serial Deck Control

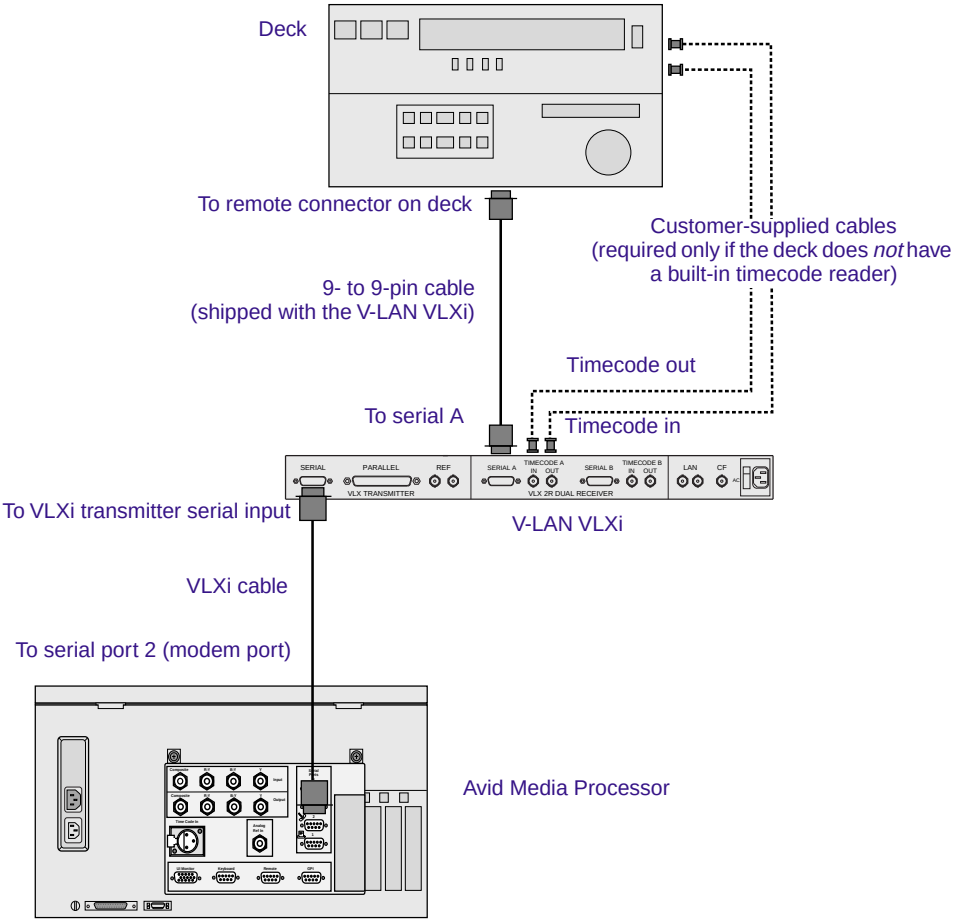


Figure 7-4 V-LAN VLXi Deck Control

Connecting a Reference Signal

All Avid DNG systems require a video reference signal from a black burst generator or the house black reference signal.

A single source video feed can be routed to other "genlock" connectors by using "T" connector. The video input connector on the Video Slave Driver is a high impedance connection and is not terminated in a 75-ohm load.

The reference signal connects to the Video Slave Driver and Avid Media Processor, as well as any deck and V-LAN VLXi that are part of the system. The Video Slave Driver then uses the slave clock signal to synchronize the audio interface (see Figure 7-5).

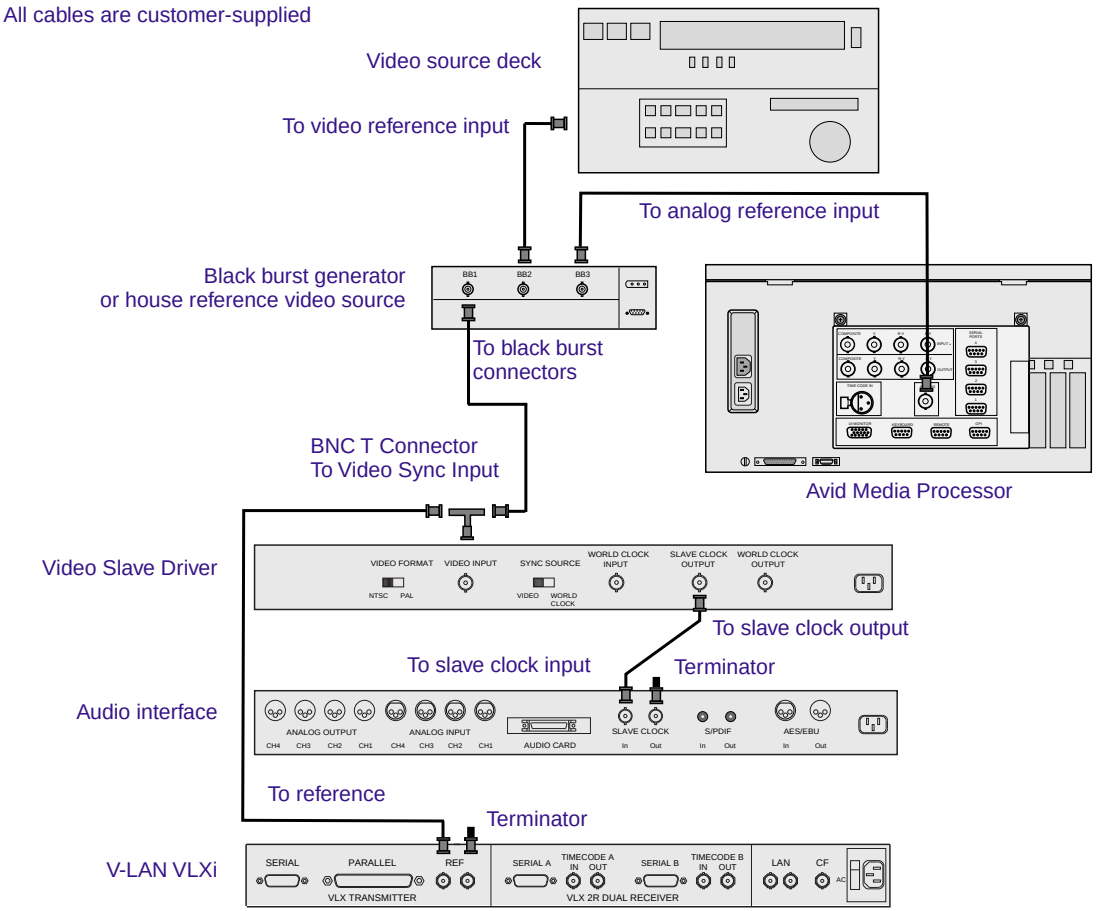


Figure 7-5 Reference Signal

Connecting GPIs

Avid DNG systems support a general-purpose interface (GPI). Special video effects and character generation can be triggered with GPIs. The Avid system interprets the GPI trigger directive, which tells the system when to trigger an external source. A V-LAN VLXi (GPI) or Avid GPI controller is required to use this interface.

The GPI can control the Stop, Standby, Play, Record, Recue, Skip, and Tally functions. The input signals for these functions are IN1 to IN8 and cannot be reassigned (see Table 7-1). IN7 and IN8 are not used. These eight inputs provide 16 output signals that are user assignable. For information on entering GPI triggers, see the user's guide for the system.

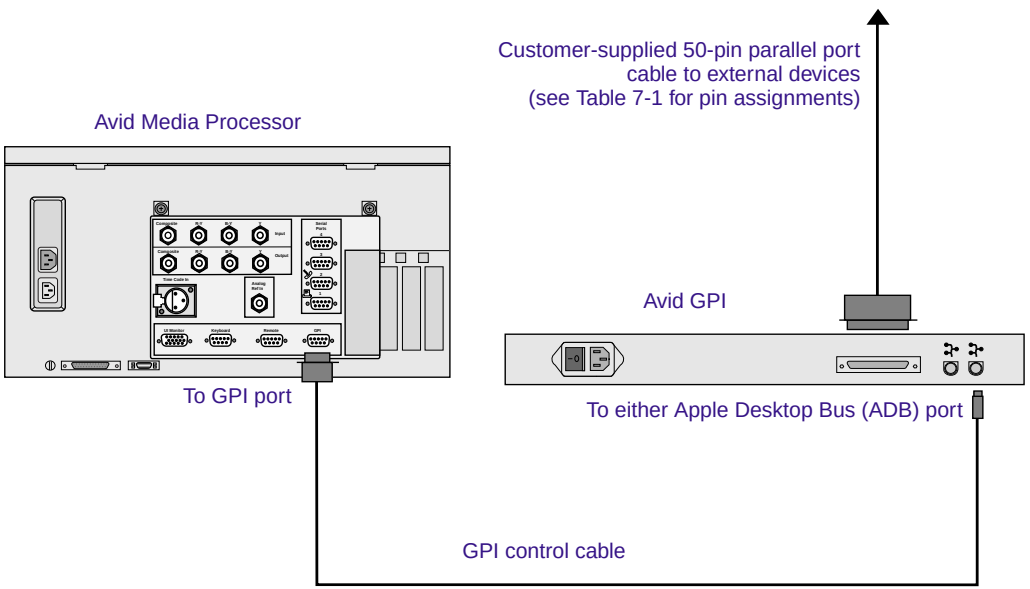

Customer-supplied 50-pin parallel port
cable to external devices
(see Table 7-1 for pin assignments)
Avid Media Processor
Avid GPI
To GPI port
To either Apple Desktop Bus (ADB) port
GPI control cable

Figure 7-6 Avid GPI Connections

Table 7-1 Avid GPI Controller Pin Assignments

Pin #	Signal	Function	Pin #	Signal	Function	Pin #	Signal	Function
1	IN1	Stop	18	VCC	+5 V pull-up	35	GND	Ground
2	VCC	+5 V pull-up	19	GND	Ground	36	VCC	+5 V pull-up
3	OUT5	Assignable*	20	IN2	Play / record	37	GND	Ground
4	OUT6	Assignable	21	IN3	Standby	38	VCC	+5 V pull-up
5	OUT7	Assignable	22	IN4	Recue	39	GND	Ground
6	OUT8	Assignable	23	IN8	Reserved	40	VCC	+5 V pull-up
7	OUT1	Assignable	24	IN7	Reserved	41	GND	Ground
8	OUT3	Assignable	25	IN6	Tally in	42	GND	Ground
9	OUT16	Play Status Tally	26	IN5	Skip	43	GND	Ground
10	OUT14	Stop Status Tally	27	OUT2	Assignable	44	GND	Ground
11	OUT9	Assignable	28	OUT4	Assignable	45	GND	Ground
12	OUT11	Assignable	29	OUT15	Standby Status Tally	46	GND	Ground
13	GND	Ground	30	OUT13	Assignable	47	GND	Ground
14	VCC	+5 V pull-up	31	OUT10	Assignable	48	GND	Ground
15	GND	Ground	32	OUT12	Assignable	49	GND	Ground
16	VCC	+5 V pull-up	33	GND	Ground	50	GND	Ground
17	GND	Ground	34	VCC	+5 V pull-up			

* Assignable means that the user can assign the output signal in the Avid application.

The V-LAN VLXi GPI controller in shown in Figure 7-7. Table 7-2 lists the V-LAN VLXi serial pin assignments. All outputs are open collector type; they float when off and connect to ground when on. Each output can drive up to 100 mA with an operating voltage range of up to 30 V.

The parallel port uses standard parallel pin assignment. See the documentation that come with the V-LAN VLXi.

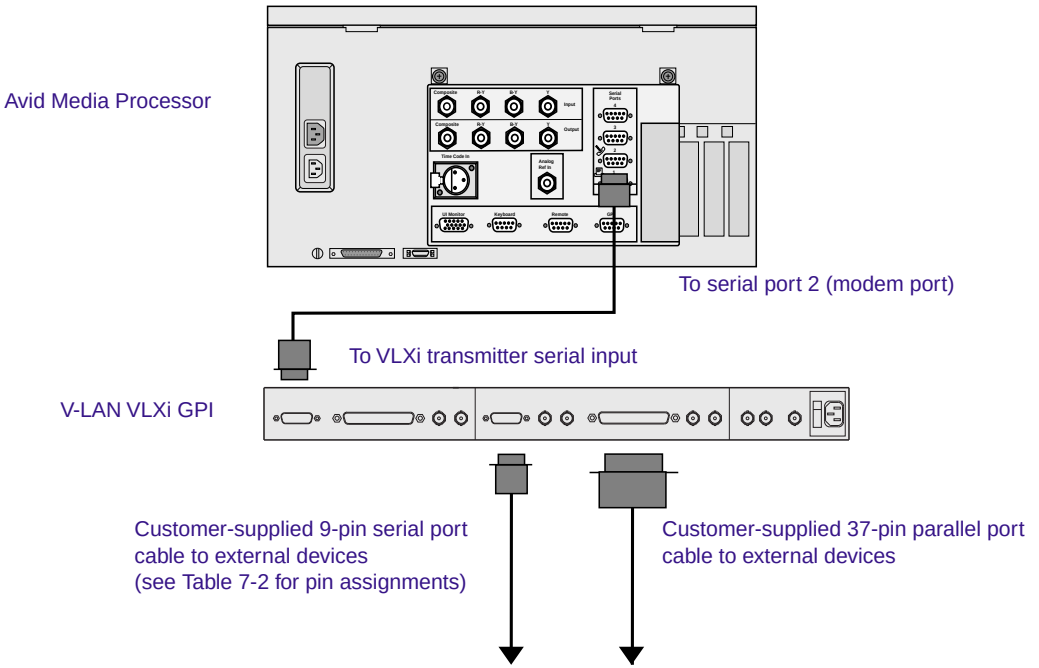

Avid Media Processor
To serial port 2 (modem port)
To VLXi transmitter serial input
V-LAN VLXi GPI
Customer-supplied 9-pin serial port cable to external devices (see Table 7-2 for pin assignments)
Customer-supplied 37-pin parallel port cable to external devices

Figure 7-7 V-LAN VLXi GPI Connections

Table 7-2 V-LAN VLXi Serial Pin Assignments

VLXi Pin	Function
1	Shield/ground
2	Receive A(–)
3	Transmit B(+)
4	Transmit common/ground
5	Not used
6	Receive common/ground
7	Receive B(+)
8	Transmit A(–)
9	Shield/ground

CHAPTER 8

Audio Connections

All Avid DNG systems include a four-channel audio interface or the optional Avid eight-channel audio interface attached to a Pro Tools audio board and Video Slave Driver. This chapter provides audio hardware information for each system.

NewsCutter – The system includes an audio amplifier and two speakers or the optional, rack-mountable speaker/amplifier combination.

Single-Channel AirPlay MP and AirPlay MP/NewsCutter Combination – An audio amplifier and two speakers or a rack-mountable speaker/amplifier unit are optional. Avid recommends synchronizing AirPlay MP systems to the Society of Motion Picture and Television Engineers/European Broadcast Union (SMPTE/EBU) master clock system for accurate start times.

Multichannel AirPlay MP – An audio interface and Video Slave Driver are connected to the Pro Tools board for each channel. An audio amplifier and two speakers or a rack-mountable speaker/amplifier combination are optional for each record and playback channel, but not for the control channel. Avid recommends synchronizing AirPlay MP systems to an SMPTE/EBU master clock system driver for accurate start times.

See **Chapter 5** *for information about installing the Pro Tools audio board.*

About Audio Hardware

Avid systems includes the following three devices for sampling, recording, and playing audio:

- Audio interface
- Pro Tools board
- Video Slave Driver

The audio interface, which is connected to the Pro Tools board, converts analog or Audio Engineering Society/European Broadcast Union (AES/EBU) digital audio (for example, audio from a videotape or CD) to and from digital audio for the Pro Tools board.

The audio interface is connected to the Video Slave Driver and a black burst generator reference signal which locks audio and video sampling together to keep video and audio synchronized. The audio interface is usually connected to an amplifier with speakers or a rack-mountable speaker/amplifier unit for monitoring audio during recording and playback.

Four-Channel Audio Interface

The standard four-channel audio interface has connectors for four channels of analog audio input and four channels of output, which is the maximum number of channels supported by Avid DNG systems. Connectors are also provided for one input and one output channel of AES/EBU digital audio.

Eight-Channel Audio Interface

The Avid eight-channel audio interface is optional hardware that provides connectors for eight channels of analog audio input and eight channels of output with high-resolution 15-segment LED output metering. Note that Avid DNG systems accept up to four channels of input and output.

The unit also provides four AES/EBU-format digital audio input channels and four output channels.

Connecting Audio

Figure 8-1 and Figure 8-2 show how to connect the Pro Tools hardware (that is, the audio interface and Video Slave Driver, which process up to four channels of analog audio input and output) and an amplifier with speakers.

After completing any audio hardware installation, changes, or maintenance, you must configure the audio software and adjust the Pro Tools settings.

Disconnect the deck's audio input while recording and editing to prevent feedback. When creating digital cuts, reconnect the audio input and disconnect the audio output. Or, turn the input record levels on the deck down when recording into the Avid system and editing. Then readjust the levels when creating a digital cut.

Connecting Digital Audio

An optional digital audio device can be connected to the audio interface. Figure 8-1 shows the four-channel connections. Figure 8-2 shows the eight-channel connections.

Connect digital audio input only if a valid, uninterrupted digital signal is available for the system. If digital audio input is disrupted, system errors occur.

Digital audio devices that use 48 kHz sample rates can be connected.

- AES/EBU is a format used with professional digital audio equipment.
- Some digital audio tapes (DATs) use a Sony/Phillips Digital interface (S/PDIF) format found in consumer digital audio equipment.

Connecting to a Master Clock

If you are using AirPlay MP, Avid strongly recommends synchronizing the Avid Media Processor clock to the house master clock (SMPTE for NTSC, and EBU for PAL) for accurate start times. The house master clock can be connected to either the Ch4 audio input or the Timecode In connector on the broadcast panel, but not both. This timecode is used throughout the DNG system.

When the fourth audio channel input is used for the timecode, only three channels of audio input are available, even if using the eight-channel audio interface.

If you connect a master clock driver to the four-channel audio interface, only three audio input channels remain.

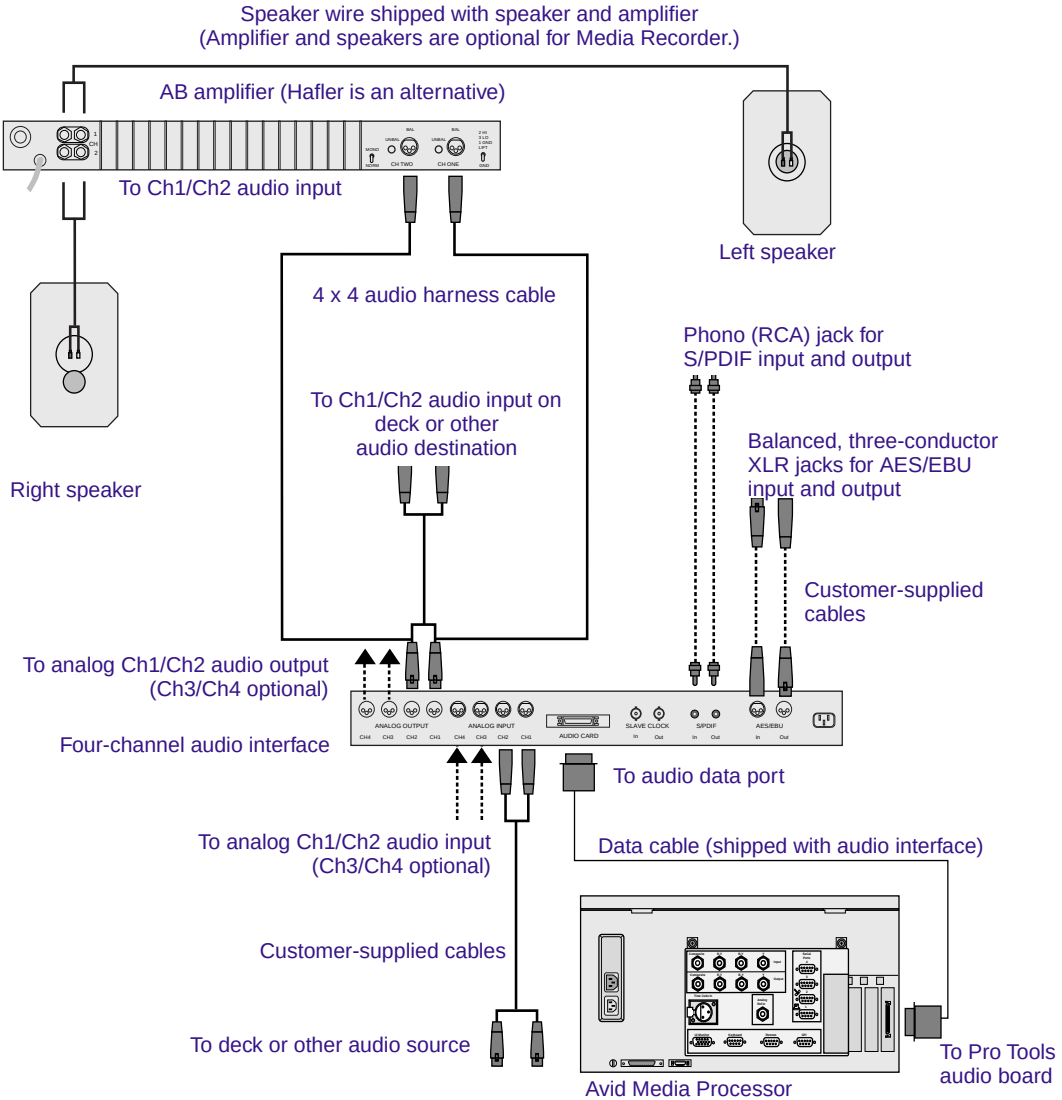


Figure 8-1 Audio Input and Output Using the Four-Channel Audio Interface, AB Amplifier, and Speakers

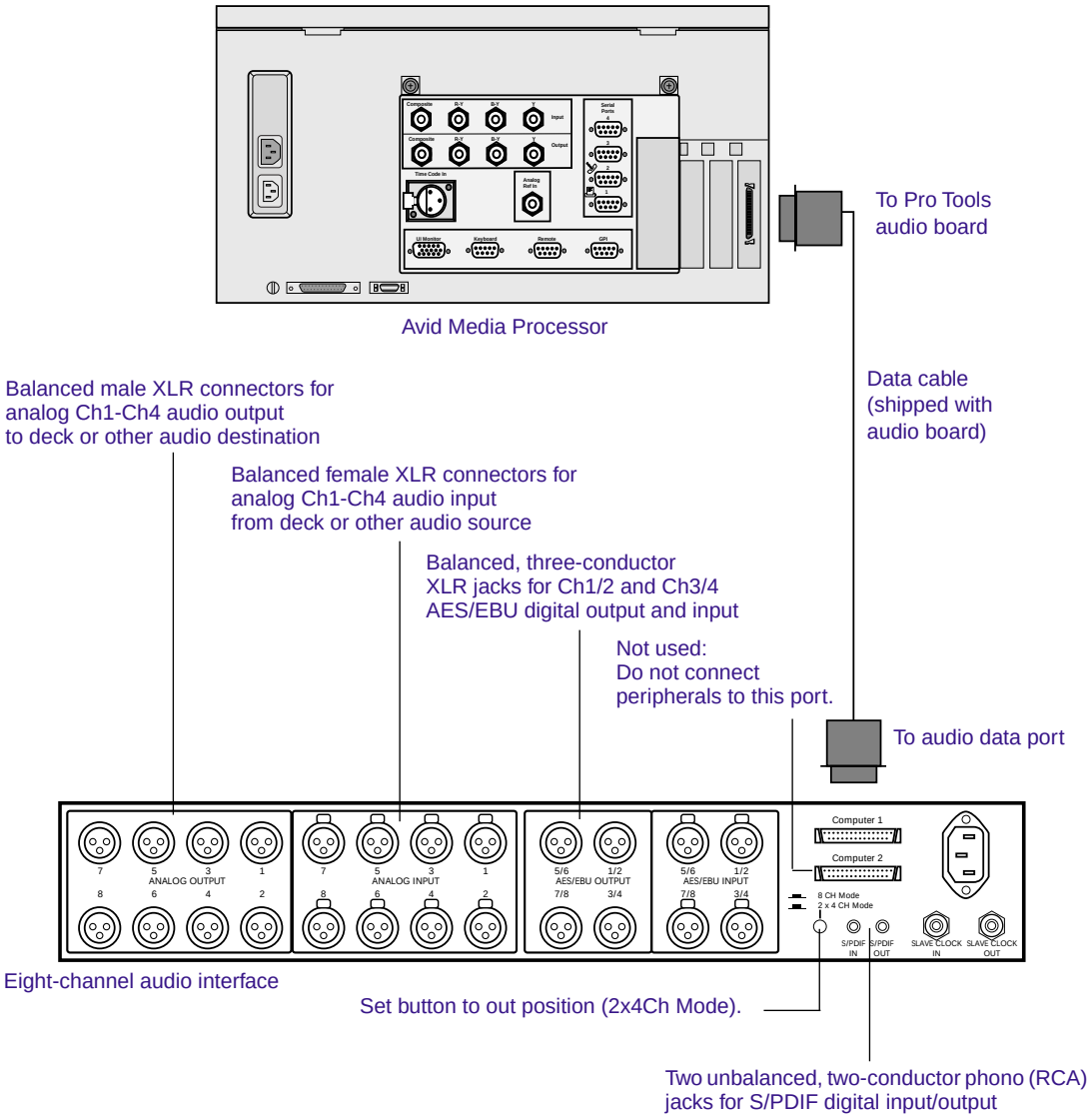


Figure 8-2 Audio Input and Output Using the Optional Eight-Channel Audio Interface

Connecting a Reference Signal

All Avid DNG systems require a video reference signal from a black burst generator or the house black reference signal (see Figure 8-3). The reference signal connects to the Video Slave Driver and Avid Media Processor, as well as any deck and V-LAN VLXi that are part of the system. The Video Slave Driver then uses the slave clock signal to synchronize the audio interface.

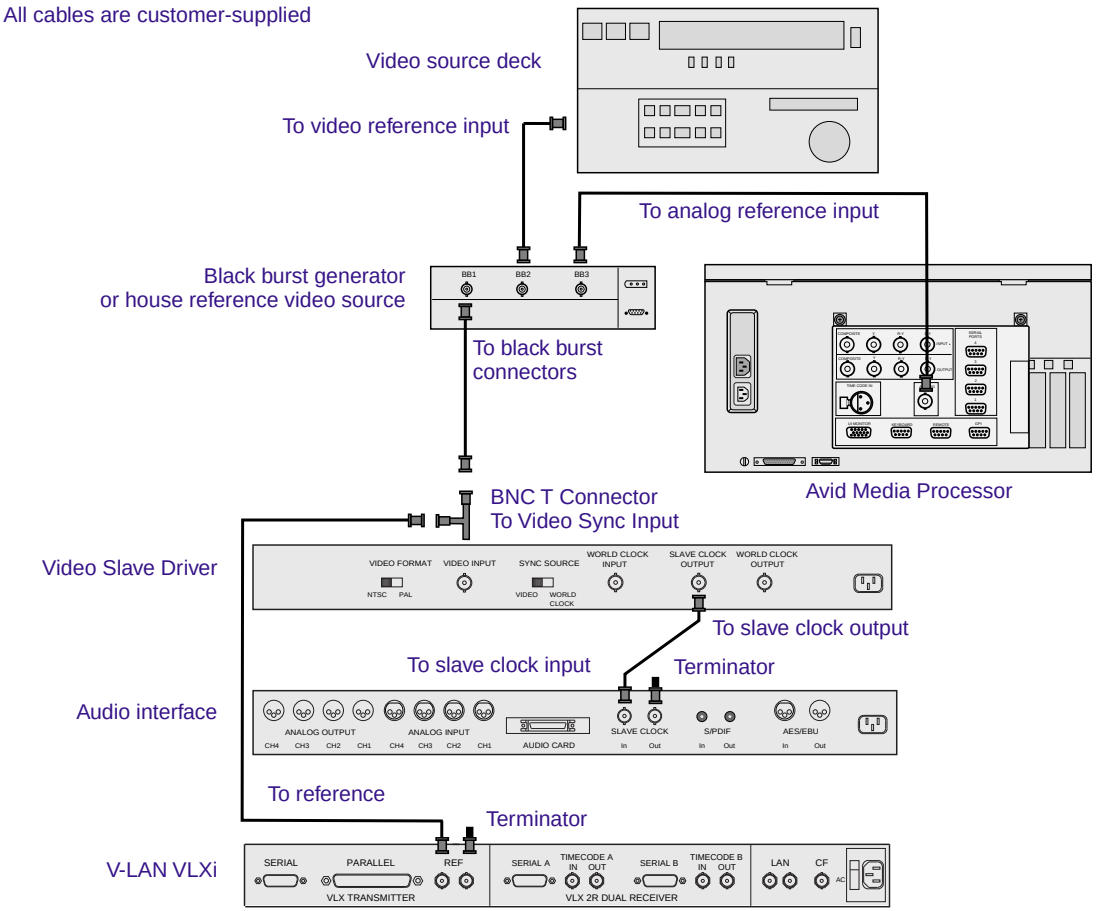


Figure 8-3 Reference Signal

Configuring Audio

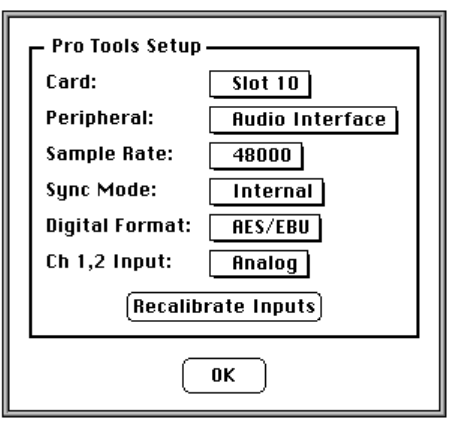
Once the audio components are connected, use the following sections to configure the audio hardware. The hardware only needs to be configured the first time you run the system.

Configuring the Four-Channel Audio Interface

If your system has the standard four-channel audio interface, use the Pro Tools software to configure your audio hardware the first time you run your system. If your system has the eight-channel audio interface, see **"Configuring the Avid Eight-Channel Audio Interface" on page 133**.

1. Double-click on your Utilities folder to open it. This folder is located on the Avid system drive.
2. Double-click the Pro Tools Setup icon.

The following dialog box opens.



3. Configure the dialog box so it looks like the previous example.
    a. Choose the Card slot number that is being used for your system. Only the slot with the audio interface board will be detected.
    b. Choose 48000 for the Sample Rate. DNG systems only support a sample rate of 48000.
4. If you are using Digital audio inputs, change the Ch 1, 2 Input to Digital, the Digital Format to S/PDIF, and the Sync Mode to Digital.

Choose Digital audio input only if a valid, uninterrupted digital signal is available for the system. If digital audio input is disrupted, system errors occur.

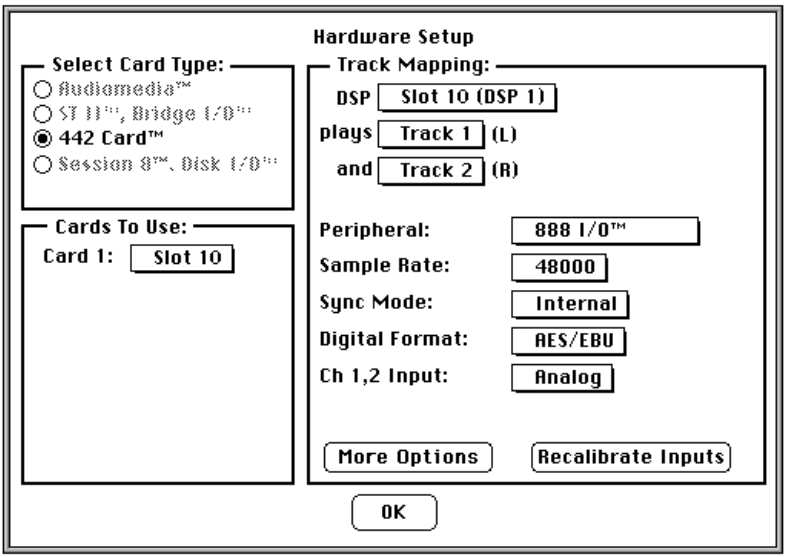
5. Click Recalibrate Inputs, then click OK.

Configuring the Avid Eight-Channel Audio Interface

If your system has an Avid eight-channel audio interface, use the Hardware Setup software to configure your audio hardware the first time you run the system. If the system has the four-channel audio interface, see **"Configuring the Four-Channel Audio Interface" on page 132**.

1. Double-click on your Utilities folder to open it. This folder is located on the Avid system drive.
2. Double-click the Hardware Setup icon.

The following dialog box opens.



3. Select 442 Card as the Card Type.
4. Configure the dialog box so it looks like the previous example. However, choose the Card slot number that is being used for your system.
    a. Choose 888 I/O as the Peripheral.
    b. Choose 48000 as the Sample Rate.
    c. Choose the appropriate Sync Mode:

        Internal – Sets the clock and timing for the sample rate internally. When using black burst as a reference signal for your source decks and a Video Slave Driver (which is the standard setup), set the Sync Mode to Internal.

        Digital – When using a source deck that provides a digital word-clock signal that is wired to a Video Slave Driver, set the Sync Mode to Digital.

d. Choose a digital format:

Audio Engineering Society/European Broadcast Union (AES/EBU)

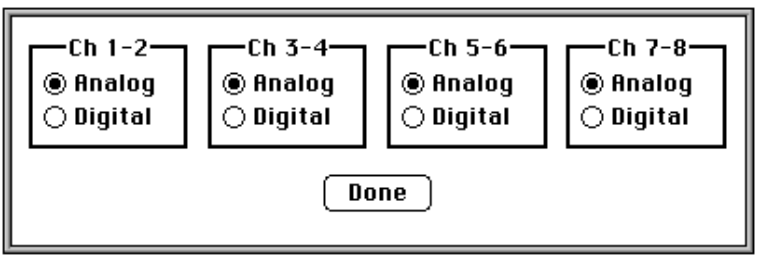
(Sony/Phillips Digital Interface Format (S/PDIF)

e. Choose the appropriate Ch 1, 2 Input:

Analog – If using analog inputs, choose Analog.

Digital – If using digital audio inputs, change the Ch 1, 2 Input to Digital, the Digital Format to S/PDIF, and the Sync Mode to Digital.

-If you are using four digital inputs, click the Other Options button. The following dialog box opens.



-Click to select Digital as the input for Ch 1-2 and Ch 3-4.

-Click Done.

5. Click OK.

CHAPTER 9

Storage Drive Connections

This chapter supplies information on connecting external storage drives to Avid systems. All the storage drives described in this chapter connect to the ATTO SiliconExpress SCSI boards.

Chapter 5 *provides instructions for installing ATTO SiliconExpress boards.*

Specific devices for Avid systems are listed as follows.

NewsCutter and Media Recorder – Attach MediaDrives, one or two MRS enclosures, and MediaDocks. **Chapter 1** provides a complete list of NewsCutter and Media Recorder options.

Single-Channel AirPlay MP and AirPlay MP/NewsCutter Combination – Attach one or two MRS enclosures, multiple MRS enclosures with storage expanders, MediaDocks, or RAID. **Chapter 2** provides a complete list of Single-Channel AirPlay MP and AirPlay MP/NewsCutter options.

Multichannel AirPlay MP – Each channel of multichannel AirPlay MP systems has two SiliconExpress boards. One board connects to the local buffer drives; the other board connects to the shared library of storage drives.

Buffer drives can be MediaDocks, one or two MRS enclosures, or multiple MRS enclosures with storage expanders.

Shared libraries use an Avid MediaShare™ with MediaDocks, one or two MRS enclosures, multiple MRS enclosures with storage expanders, or RAID. Chapter 3 provides a complete list of multichannel AirPlay MP options.

About Storage Drives

Avid systems include an Avid drive and MediaDrives. The Avid drive, or startup drive, is a hard disk drive installed inside the Avid Media Processor. It stores the software that is required to start and run the system.

MediaDrives store digital video and audio and are connected to the Avid Media Processor via a SiliconExpress board, a storage processor board installed in the Avid Media Processor. This chapter explains how to install the external MediaDrives.

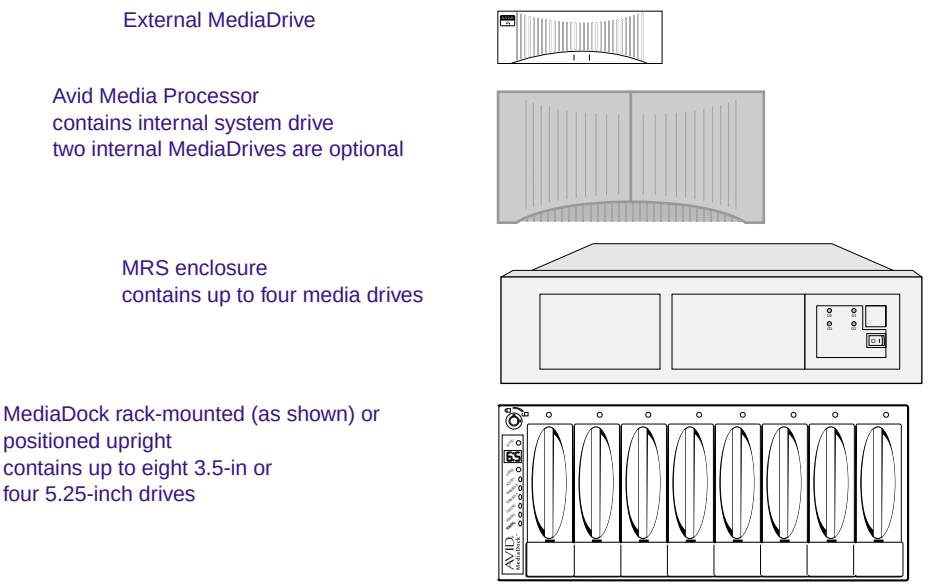


Figure 9-1 Avid Internal and External Media Drives

Media Storage Drive Options

Media storage drive options include:

- Multidrive rack-mountable storage (MRS)

  Each rack-mounted enclosure can contain as many as four drives.

- Multiple MRS enclosures with storage expanders

  Some of the MRS enclosures include storage expanders, which make it possible to connect more drives to the system.

- Redundant arrays of independent drives (RAID)

  Each RAID enclosure includes media storage drives and a backup drive for restoring lost media.

- MediaDrives

  Individual fixed drives (MediaDrives) can be linked together in chains, then connected to the system to provide more storage.

- MediaDock

  This rack-mountable chassis provides slots for up to eight removable drives.

Buffer Drives and Shared Library

Multichannel AirPlay MP systems include buffer storage drives connected directly to each channel and a single, central shared library of storage drives linked to all the channels via a SCSI network.

When a channel records new material, the digital video is stored on the buffer drives for the channel. The system automatically uploads the material to the shared library of storage drives. The system automatically downloads the material from the shared library to the playback channel's buffer from which it is played.

Understanding SCSI Hardware

This section provides background information about the hardware used to connect storage drives to the system. Information on hardware preparation is included.

See **"Connecting Storage Drives" on page 151** for step-by-step storage drive installation instructions.

Drive Configurations

Up to seven SCSI devices can be connected to a SiliconExpress IV single-ended board. You can connect one MRS enclosure containing four drives and a second MRS enclosure containing three additional drives. The drives have SCSI IDs ranging from 0 to 6. Procedures are provided later in this chapter.

Storage Expander Configurations

Storage expanders provide additional drive connections using SiliconExpress 4D boards. Although each storage expander can be linked to as many as seven drives, the system considers each storage expander to be a single SCSI device. For example, chain two storage expanders together and link them to a SiliconExpress 4D board, then connect seven drives to each storage expander for a total of 14 drives.

Systems that include storage expanders require both differential and single-ended SCSI hardware. Differential hardware links the storage expanders to a SiliconExpress 4D board. Single-ended hardware links the storage drives to each storage expander.

However, knowing which hardware to use is complicated because each storage expander could be installed inside an MRS enclosure, which also contains MediaDrives. An MRS enclosure that includes a storage expander can also be connected to an enclosure that contains only drives.

See **"Connecting MRS Enclosures with Storage Expanders" on page 154** for procedures.

Multichannel Storage Configurations

Multichannel AirPlay MP systems include buffer storage drives connected directly to each channel and a central shared library of storage drives linked to all the channels via a SCSI network.

The basic drive-sharing architecture is illustrated in Figure 9-2.

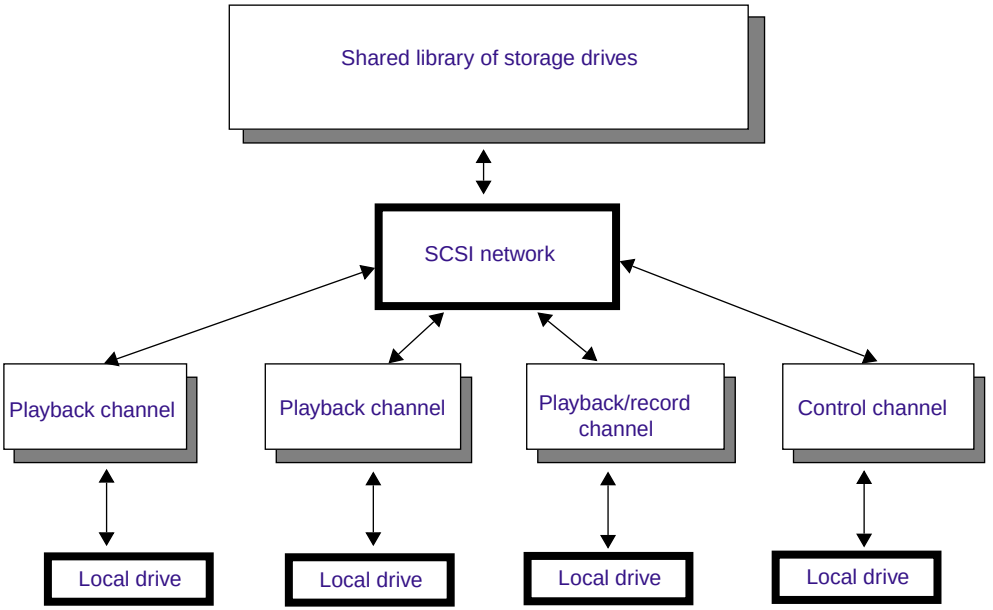


Figure 9-2 Multichannel AirPlay MP SCSI Network for Sharing Drives

When a channel records new material, the digitized video is stored on the buffer drives for the channel. The system uploads the material to the shared library of storage drives.

When a channel plays material, the system downloads the material from the shared library to the playback channel's buffer. Each playback channel examines its active playlist and determines the next several events it needs to play. It then uses the time when it is not playing to download the required events from the shared library to its buffer. Because the system needs to download material for playback, you cannot play back from a channel continuously for 24 hours.

Although you can play events directly from the central shared library, normally events are downloaded to local storage buffers for playback. Using buffers with a shared library increases the reliability of the system. When each channel plays material from its own buffer drives, the demands placed on the shared library are reduced, the same event can play on multiple playback channels, and there is no single point of failure.

In the multichannel drive-sharing system, the Avid Media Processor for each channel includes two SiliconExpress boards. One board is connected to the buffer drives for the channel. The other board is connected to the SCSI network that links the channel to the shared library of storage drives.

Only the record channel has write-access to the shared library of storage drives. The record channel uses the write-access privileges to transfer newly recorded material from the record buffer to the shared library. All the other channels have read-only access, which they use to download material from the shared library to their buffers for playback.

Write protection is set up by mounting the storage drive volumes on each channel as read-only or read/write, based on a file installed in each channel's system folder and initialization software that runs on each Avid Media Processor at startup. Each channel periodically updates its view of the shared file system, so any changes posted by one channel are available to all channels.

Single-Ended and Differential SCSI Connections

All drives are linked to the Avid Media Processor using SCSI. SCSI is a high-speed data interface between the Avid Media Processor and attached devices.

Due to the high data transfer rates associated with digital audio and video, Avid systems use wide, 68-pin SCSI connections to link the Avid Media Processor to the media storage drives. There are two types of wide SCSI connections:

- Single-ended SCSI

  For linking fewer storage devices close to the Avid Media Processor.

- Differential SCSI

  For linking storage devices farther away from the Avid Media Processor, using storage expanders for connecting more storage devices, and for higher data rates.

Single-ended and differential SCSI are incompatible with each other. Mixing the two interfaces can seriously damage any or all connected devices due to electrical and cabling incompatibilities.

A single-ended SCSI bus complements each data line with a ground path connection, so for every line that passes information between the host and a device, there is one connector that is always at ground potential.

In contrast, a differential bus has no data ground lines. Instead, each signal line is complemented by a negative data line. When a signal line goes high, its complement goes low, and vice versa.

Single-ended and differential SCSI devices must be attached to the correct type of single-ended or differential SCSI board. Failure to install the hardware correctly could cause the system to fail or could damage the connected devices.

The differences between the two types of SCSI hardware are explained in the following sections. The installation instructions at the end of this chapter specify the hardware to use for the storage option.

ATTO SiliconExpress Boards

All media storage devices are connected to the Avid Media Processor via a SiliconExpress board installed in the Avid Media Processor. When the system is recording and playing video, the SiliconExpress board provides a fast SCSI connection for transferring digital media between the Avid Media Processor and each storage device.

Avid Media Processors can include one or two, single-ended or differential SiliconExpress boards. All SiliconExpress IV boards have 68-pin connectors. The differences between the single-ended and differential versions of the board are shown in Figure 9-3.

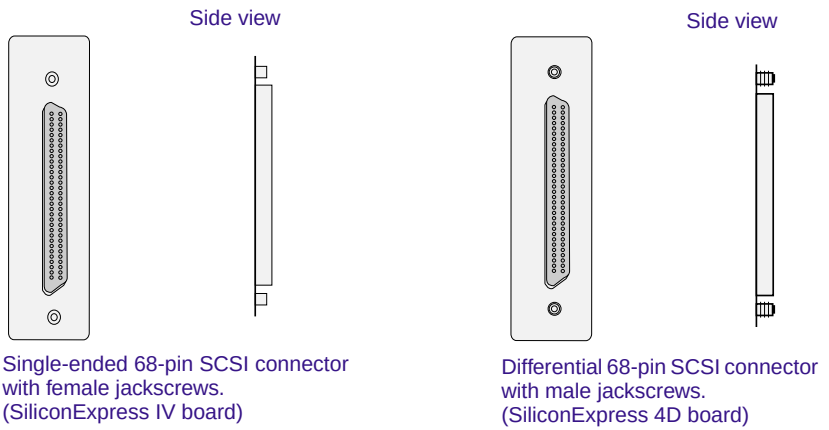

Side view
Side view
Single-ended 68-pin SCSI connector with female jackscrews. (SiliconExpress IV board)
Differential 68-pin SCSI connector with male jackscrews. (SiliconExpress 4D board)

Figure 9-3 Identifying Single-ended and Differential SiliconExpress Boards

SCSI Cables

Each storage device is connected to a SiliconExpress board using the appropriate single-ended or differential SCSI cables, connectors, and terminators.

Figure 9-4 shows the mating single-ended or differential SCSI cables for the connectors shown in Figure 9-3.

Use the appropriate single-ended or differential SCSI cables specially designed and supplied by Avid. Terminate the system as described in "SCSI Terminators" on page 147.

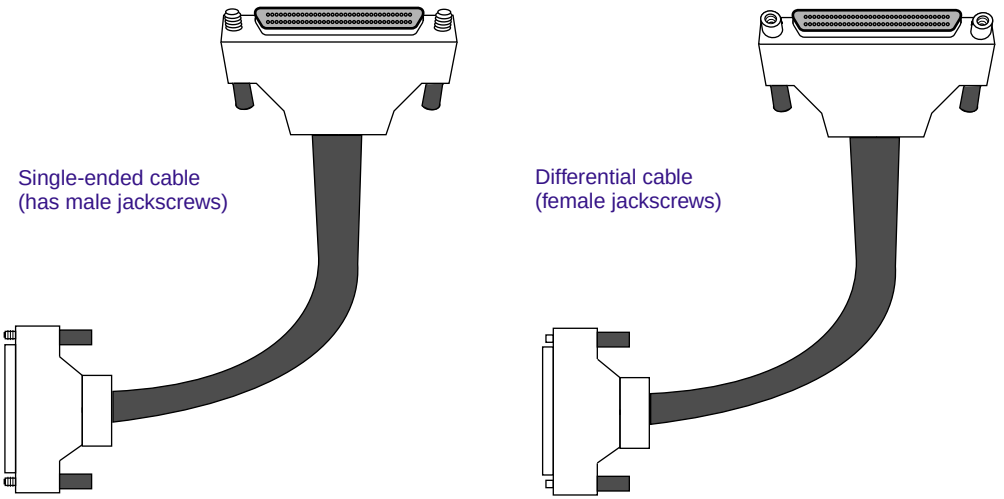


Figure 9-4 Single-ended and Differential SCSI Cables

SCSI Connectors

Some systems include only one media storage device connected to the SiliconExpress board. One end of a SCSI cable plugs into the board and the other end plugs into a SCSI connector at the back of the storage device.

Most systems include multiple storage devices. SCSI cables connect the devices in a chain by linking the SCSI connector at the back of the first device to a SCSI connector at the back of the second device, and so on. Then the chain is attached to the SiliconExpress board.

Figure 9-5 shows the location of the SCSI connectors on the MRS enclosures. Figure 9-6 shows the location of the SCSI connectors on the fixed and removable drive chassis. Figure 9-7 shows the location of the SCSI connectors on the MediaDock chassis.

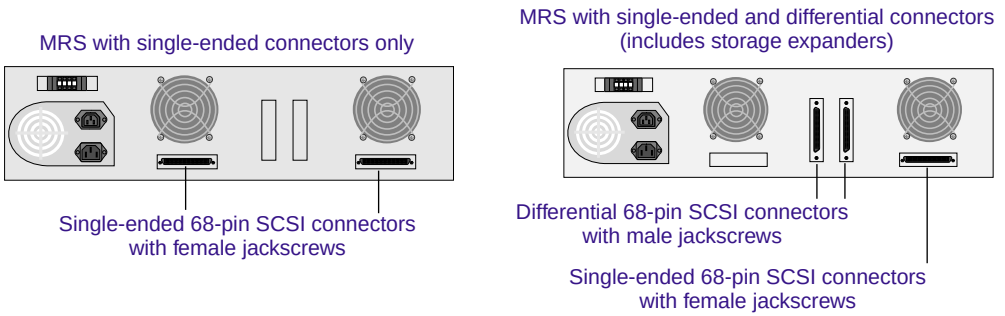

MRS with single-ended connectors only
Single-ended 68-pin SCSI connectors with female jackscrews
MRS with single-ended and differential connectors (includes storage expanders)
Differential 68-pin SCSI connectors with male jackscrews
Single-ended 68-pin SCSI connectors with female jackscrews

Figure 9-5 Single-ended and Differential SCSI Connectors on MRS Enclosures

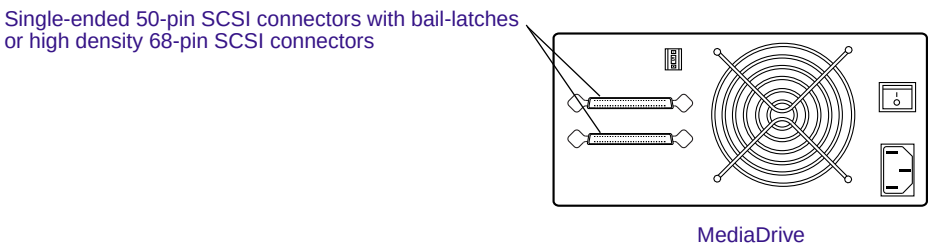


Figure 9-6 Single-ended SCSI Connectors on External MediaDrives

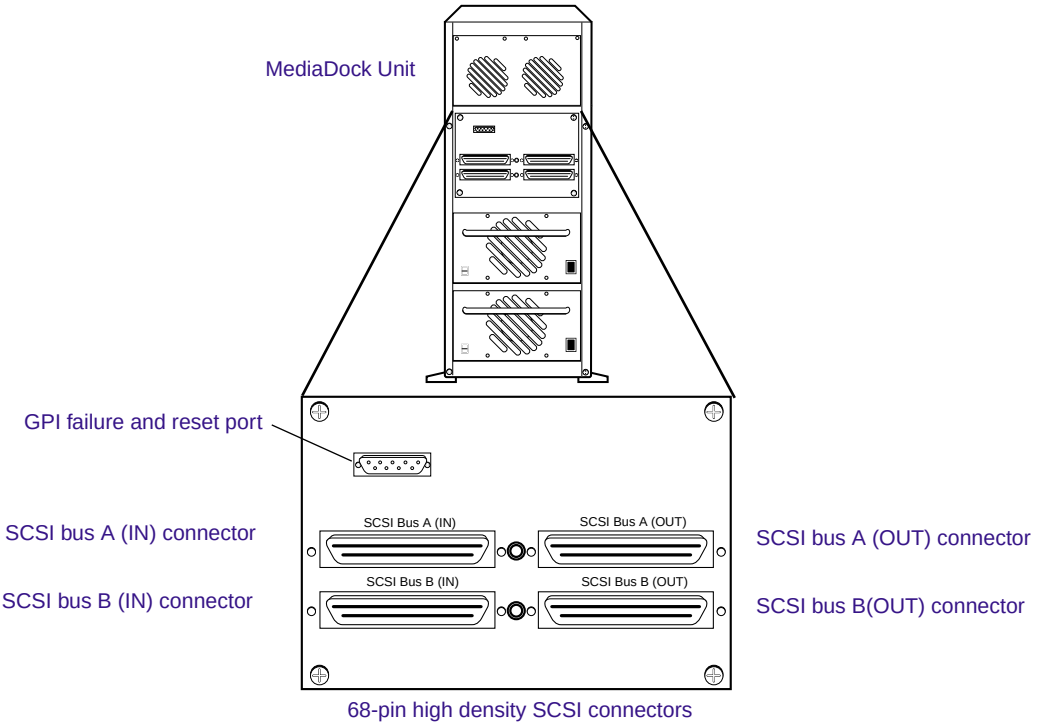
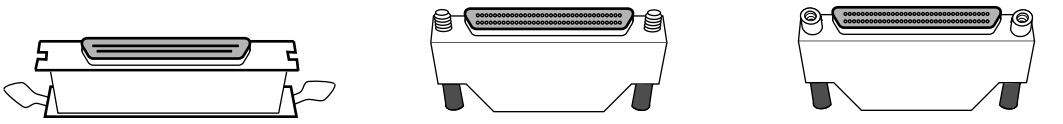

MediaDock Unit
GPI failure and reset port
SCSI bus A (IN) connector
SCSI bus B (IN) connector
SCSI Bus A (IN)
SCSI Bus A (OUT)
SCSI Bus B (IN)
SCSI Bus B (OUT)
SCSI bus A (OUT) connector
SCSI bus B(OUT) connector
68-pin high density SCSI connectors

Figure 9-7 SCSI Connectors on the MediaDock

SCSI Terminators

After the storage devices are connected to the system, one or more terminators are used to terminate each SCSI chain. Terminators ensure the proper transmission of data to and from the Avid Media Processor and each connected device. Figure 9-8 shows the types of terminators.



50-pin narrow terminator

Single-ended terminator
(purple, gray, or blue with male jackscrews)

Differential terminator
(red with female jackscrews)

Figure 9-8 SCSI Terminators

The MediaDock ships with an Avid ultra, wide 68-pin (blue) terminator.

Terminate the SCSI bus B (OUT) connector on the rear of the MediaDock chassis (see Figure 9-9) when the MediaDock is configured as a single bus configuration. When the MediaDock is configured as a dual-bus configuration, terminate both the SCSI bus A and B (OUT) connectors on the rear of the MediaDock chassis.

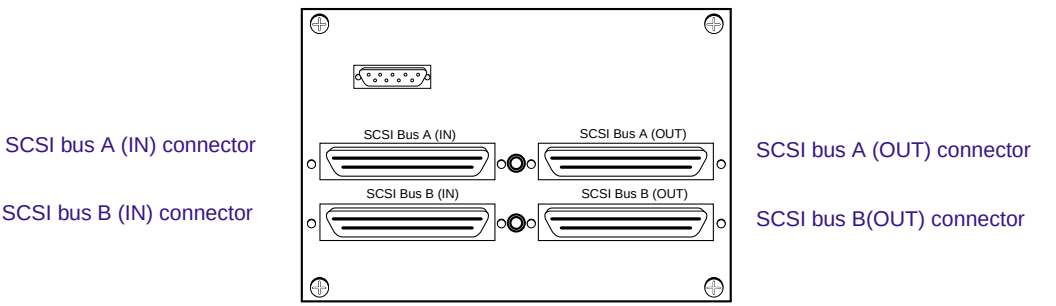

SCSI bus A (IN) connector
SCSI bus B (IN) connector
SCSI Bus A (IN)
SCSI Bus A (OUT)
SCSI Bus B (IN)
SCSI Bus B (OUT)
SCSI bus A (OUT) connector
SCSI bus B(OUT) connector

Figure 9-9 Terminating the MediaDock Chassis

SCSI IDs

The Avid Media Processor identifies each storage device using its SCSI identification number (ID). Set the SCSI ID for each device when installing it or when changing the SCSI device configurations.

SCSI IDs for AirPlay MP systems are set at the factory before they are shipped.

Each device connected to a SiliconExpress board must have a unique SCSI ID that is in the acceptable range for the storage system option. Failure to set the IDs according to the specifications for the storage option could damage the drives.

Figure 9-10 shows the SCSI ID display locations on the back of the MRS enclosures. Figure 9-11 shows the SCSI ID locations on the back of the external MediaDrive. Press where indicated in the figures to set the IDs for each device. See **"Connecting Storage Drives" on page 151** when connecting the devices.

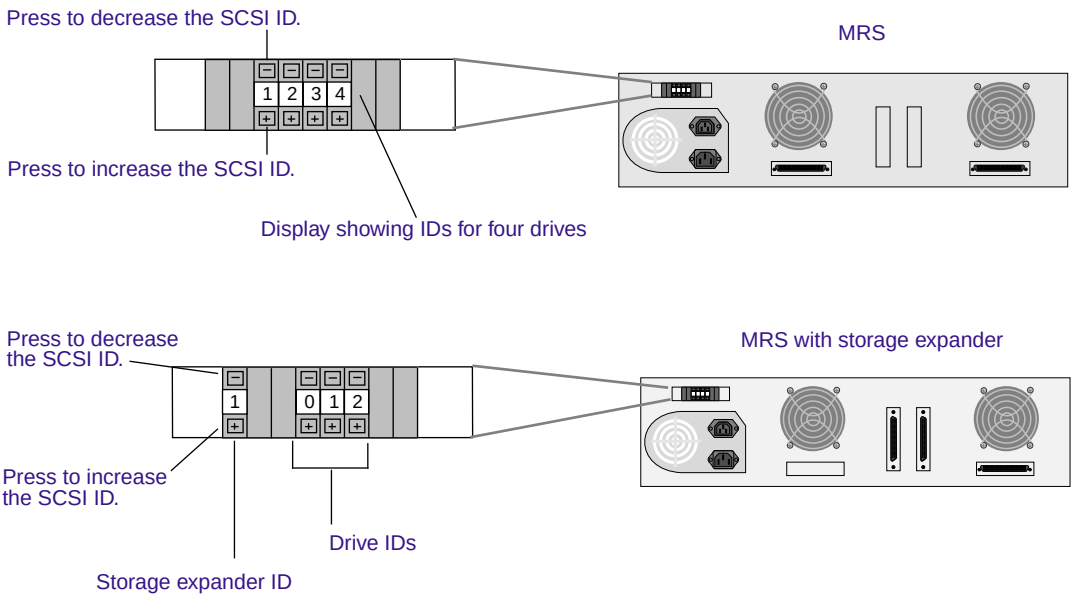

Press to decrease the SCSI ID.
MRS
1 2 3 4
Press to increase the SCSI ID.
Display showing IDs for four drives
Press to decrease the SCSI ID.
MRS with storage expander
1
0 1 2
Press to increase the SCSI ID.
Drive IDs
Storage expander ID

Figure 9-10 Setting SCSI IDs on MRS Enclosures

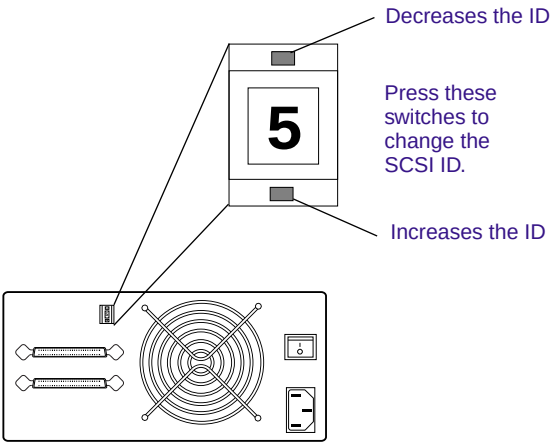


Figure 9-11 Setting SCSI IDs on MediaDrives

The MediaDock control panel displays two numbers, one on either side of a colon. The number on the left represents the selected slot location or terminator position; the number on the right is the slot's SCSI ID assignment or internal terminator status.

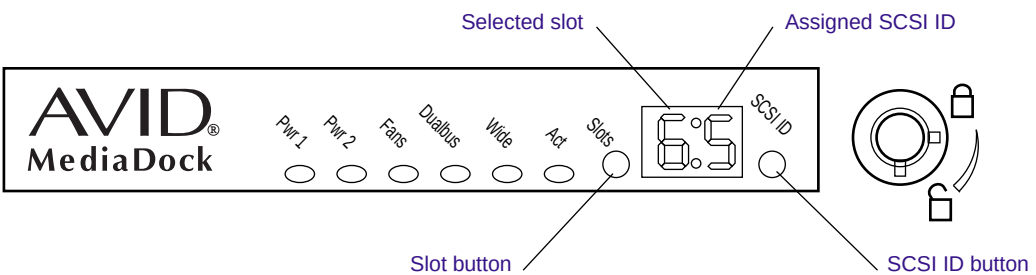


Figure 9-12 Setting SCSI IDs on the MediaDock Chassis

To assign SCSI bus ID numbers to the devices on the system:

1. Press and hold the Slot button for 5 seconds.

   This activates Set Mode and the colon in the center of the digital readout flashes.

2. Press the Slot button repeatedly until the left digit of the readout displays the target slot location.

3. Press the SCSI ID button repeatedly until the right digit of the readout displays the SCSI ID number you want to assign to the bay.

Connecting Storage Drives

The following sections provide procedures with diagrams for connecting storage drives to Avid systems.

Connecting One MRS Enclosure

This procedure describes how to connect a single MRS enclosure to a channel to provide local or buffer storage. Figure 9-13 shows a diagram of the connections. To install a single MRS enclosure:

1. Use a 68- to 68-pin single-ended SCSI cable to connect the Avid Media Processor to an MRS enclosure.

   a. Plug one end of the cable into a single-ended SCSI connector on the Avid Media Processor.

   b. Plug the other end of the cable into a single-ended SCSI port on an MRS.

Use only fingers to tighten the jack screws on the cable connectors. Excess torque can damage the screw socket.

2. Set the SCSI ID for each drive in the MRS to a unique number from 0-6, inclusive.
3. Plug a single-ended terminator into the available SCSI port on the MRS.

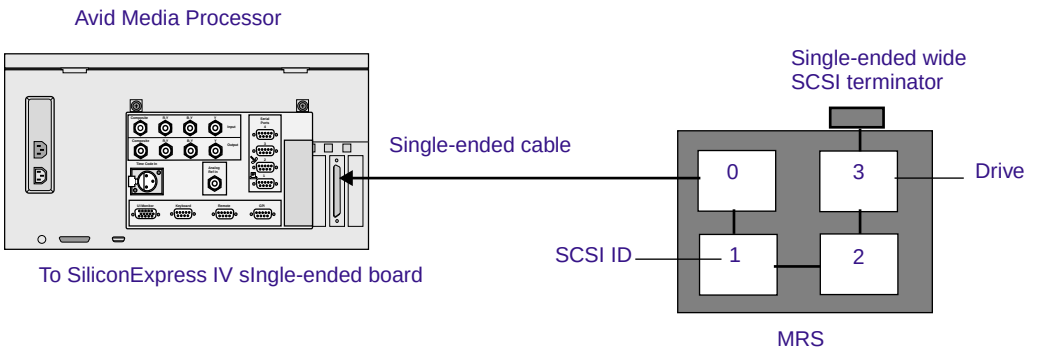


Figure 9-13 Installing One MRS Enclosure

Connecting Two MRS Enclosures

This procedure describes how to connect two MRS enclosures to a channel to provide local or buffer storage. Figure 9-14 shows a diagram of the connections.

When connecting two MRS enclosures to the system, make sure that the enclosures contain a total of no more than seven drives. The MRS enclosures connect to the Avid system using single-ended SCSI connectors.

To install two MRS enclosures:

1. Use a 68- to 68-pin single-ended SCSI cable to connect the Avid Media Processor to an MRS enclosure that contains four drives:
   a. Plug one end of the cable into a single-ended SCSI connector on the Avid Media Processor.

b. Plug the other end of the cable into a single-ended SCSI port on the MRS.

Use only fingers to tighten the jack screws on the cable connectors. Excess torque can damage the screw socket.

2. Use a 12-inch 68- to 68-pin single-ended SCSI cable to connect the first MRS to a second MRS that includes no more than three drives:

   a. Plug one end of the cable into the remaining single-ended SCSI port on the first MRS.

   b. Plug the other end into a single-ended SCSI port on the second MRS.

3. Set the SCSI ID for each drive in the MRS enclosures to a unique number from 0-6, inclusive.

4. Plug a single-ended terminator into the available SCSI port on the second MRS.

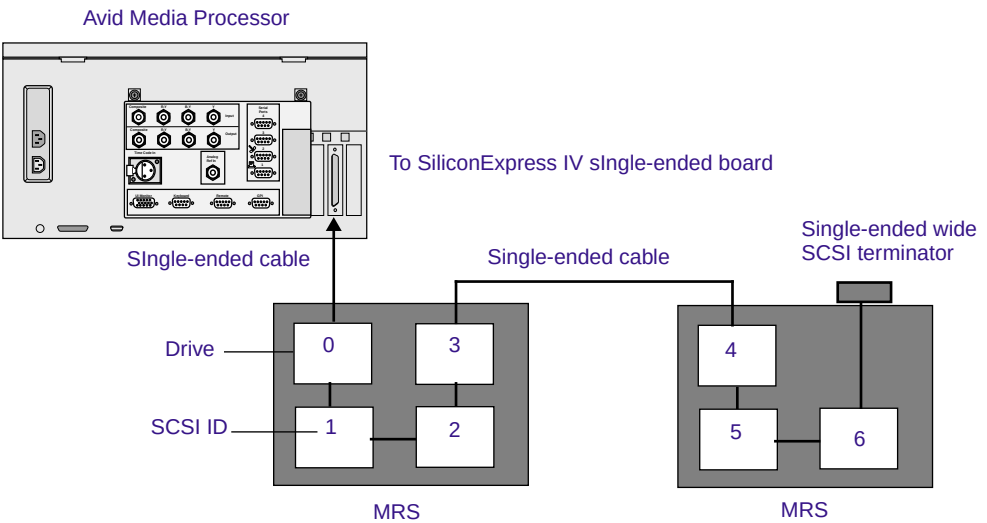


Figure 9-14 Cables, SCSI IDs, and Terminator for Two MRS Enclosures

Connecting MRS Enclosures with Storage Expanders

This procedure describes how to connect two MRS enclosures that include storage expanders to a channel to provide local or buffer storage. Figure 9-15 shows a diagram of the connections.

To install MRS enclosures with storage expanders:

1. Use a 68- to 68-pin differential SCSI cable to connect the Avid Media Processor to an MRS that includes a storage expander and three drives:
    a. Plug one end of the cable into a differential SCSI connector on the Avid Media Processor.
    b. Plug the other end into a differential SCSI port on the MRS that includes a storage expander.
2. Use 68- to 68-pin differential SCSI cables to connect each remaining MRS enclosure that includes a storage expander:
    a. Plug one end of a differential cable into a differential SCSI connector on the back of the previously installed MRS that has a storage expander.
    b. Plug the other end of the cable into a differential SCSI connector on the back of the next MRS that has a storage expander.
    c. Repeat steps a and b, using additional differential cables to connect the second MRS that has a storage expander to the third, the third to the fourth, and so on.

Connect no more than two MRS enclosures that contain storage expanders.

3. Use a 68- to 68-pin single-ended SCSI cable to connect each MRS that has a storage expander to an MRS that contains only drives.
    a. Plug one end of the cable into a single-ended SCSI port on an MRS that includes a storage expander.

b. Plug the other end of the cable into a SCSI port on an MRS that does not include a storage expander.

An MRS that includes a storage expander and an attached MRS that includes only drives can enclose a total of no more than seven drives.

4. Set the SCSI ID for each drive and storage expander:
   a. Set the SCSI ID for each storage expander to a unique number from 0-6, inclusive.
   b. Set the SCSI ID for each drive connected to a particular storage expander to a unique number from 0-6, inclusive.
5. Terminate the storage devices:
   a. Plug a differential terminator into the available differential SCSI connector on the back of the last MRS that contains a storage expander.
   b. Plug a single-ended terminator into the available single-ended SCSI connector on the back of each MRS that does not contain storage expanders.

No more than fourteen 9-GB drives can be connected.

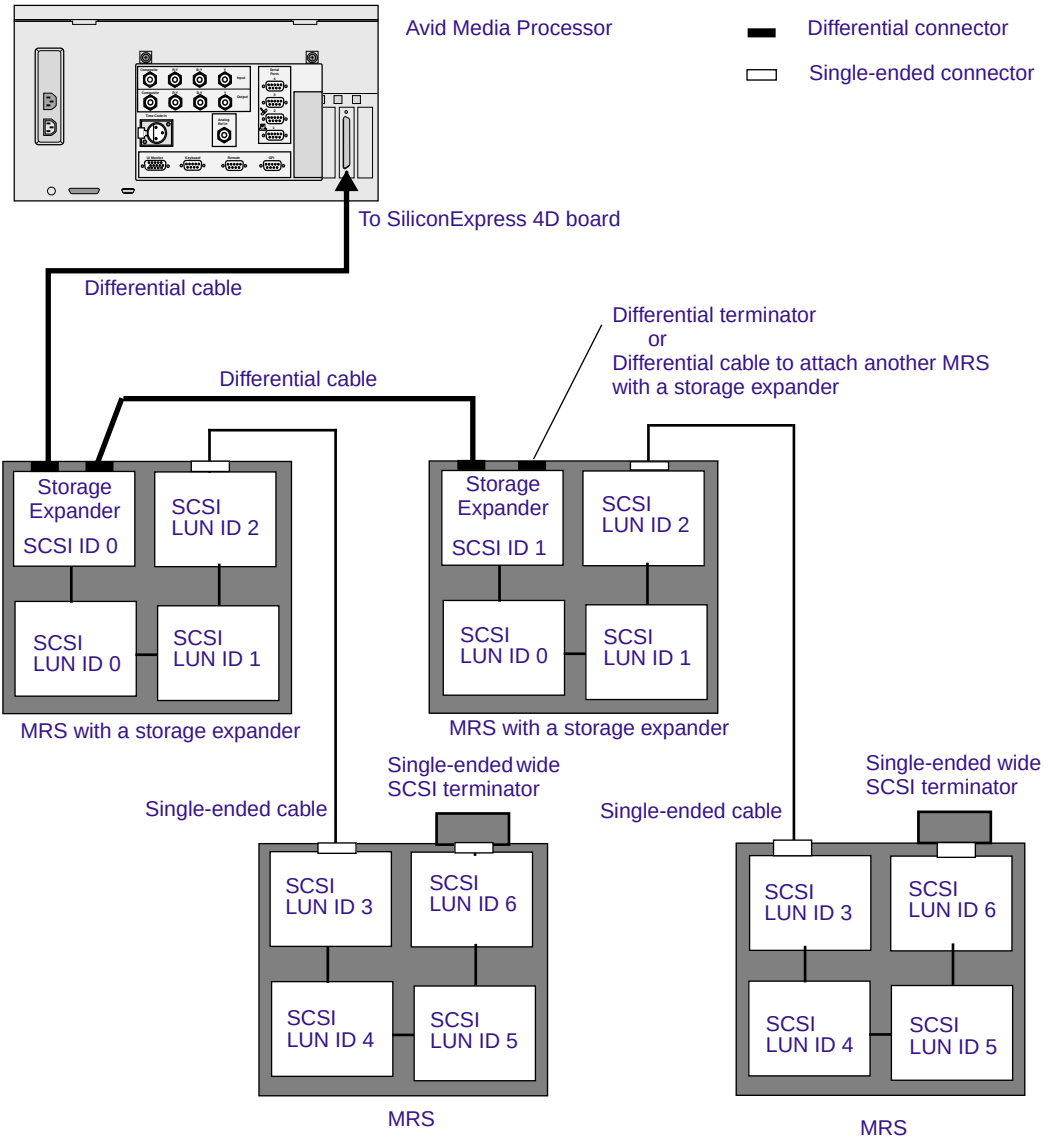


Figure 9-15 Cables, SCSI IDs, and Terminators for MRS with Storage Expanders

Connecting SCSI RAID Units

Use the following procedure in conjunction with the RAID documentation that comes with the RAID units. This procedure summarizes connecting differential SCSI units to Avid systems. Additional server information can be found in Chapter 11.

1. Use a 68- to 68-pin differential SCSI cable to connect a RAID unit to the Avid Media Processor:
   a. Plug one end of the cable into a differential SCSI connector on the Avid Media Processor.
   b. Plug the other end into a differential SCSI connector on the back of the RAID unit.
2. Connect any additional RAID units to the first using 68- to 68-pin differential SCSI cables:
   a. Plug one end of a cable into the remaining differential SCSI connector on the back of the first RAID unit.
   b. Plug the other end of the cable into a differential SCSI connector on the back of the next RAID unit.
   c. Repeat steps a and b by using additional differential SCSI cables to connect the first RAID unit to a second RAID unit, the second to a third, and so on.

No more than seven SCSI RAID units can be connected per SCSI board.

3. Set the SCSI ID for each drive to a unique number from 0-6, inclusive.

   Set the RAID controller SCSI ID using the control panel as described in the user manual supplied with the RAID hardware.
4. Plug a differential terminator into the available differential SCSI connector on the back of the last RAID unit in the chain.

Connecting 9-GB MediaDrives

The following procedure applies when connecting fixed and removable drive chassis to a system.

Failure to install storage devices correctly can prevent the system from starting or operating successfully. Use only Avid-supplied cables for optimal performance.

Use up to seven drives. A chassis includes two drives.

1. Use a 68- to 68-pin single-ended SCSI cable to attach a MediaDrive to the Avid Media Processor:
   a. Plug one end of the cable into a single-ended SCSI connector on the Avid Media Processor.
   b. Plug the other end of the cable into one of the single-ended SCSI connectors on the back of the MediaDrive.

   Or to connect a chassis, use an ATTO-to-chassis cable:
   a. Plug one end of the cable into a single-ended SCSI connector on the Avid Media Processor.
   b. Plug the other end of the cable into one of the single-ended SCSI connectors on the back of the chassis.
2. Attach the remaining devices using a SCSI-to-SCSI cable between drives, a SCSI-to-Chassis cable to connect a MediaDrive to a chassis, and a Chassis-to-Chassis cable between chassis.
3. Set the SCSI ID on each drive to a unique number from 0-6, inclusive.
4. Terminate only the last drive in the chain using a purple or blue active MediaDrive or chassis terminator (see Figure 9-8).

Connecting the MediaShare Library

The Avid MediaShare is a SCSI router that allows you to connect several Avid video and audio systems to a shared group of storage drives. MediaShare allows up to four editors to collaborate on projects from separate workstations, or work on separate parts of the same project concurrently. Figure 9-16 shows the location of the status display and the button used for selecting display choices. The *Avid MediaShare Installation and User's Guide* provides detailed information on MediaShare connections and operation.

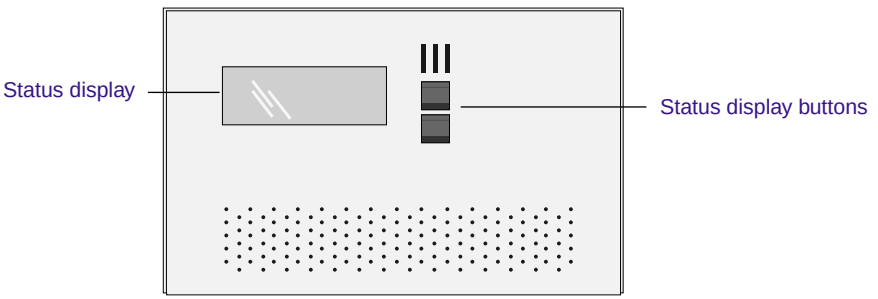


Figure 9-16 Avid MediaShare Display and Buttons

Connecting Systems to the MediaShare Unit

MediaShare units can only connect to Avid systems using differential SCSI connections. If the system does not already have a SiliconExpress 4D board, you must purchase one. Any external single-ended or differential SCSI storage drives currently connected to the system can be connected to the MediaShare unit.

To connect the Avid system to the MediaShare unit:

1. Remove any external SCSI storage currently connected to the Avid Media Processor.

2. If the system is using a single-ended SCSI adapter board, replace it with a SiliconExpress 4D board (see **Chapter 5** for information on installing system boards).
3. Use a 68- to 68-pin differential SCSI cable to connect Avid system to the Avid MediaShare:
    a. Plug one end of the differential cable into a SiliconExpress 4D board installed in the Avid Media Processor.
    b. Plug the other end of the cable into a differential SCSI host connector on the back of the MediaShare (see Figure 9-17).

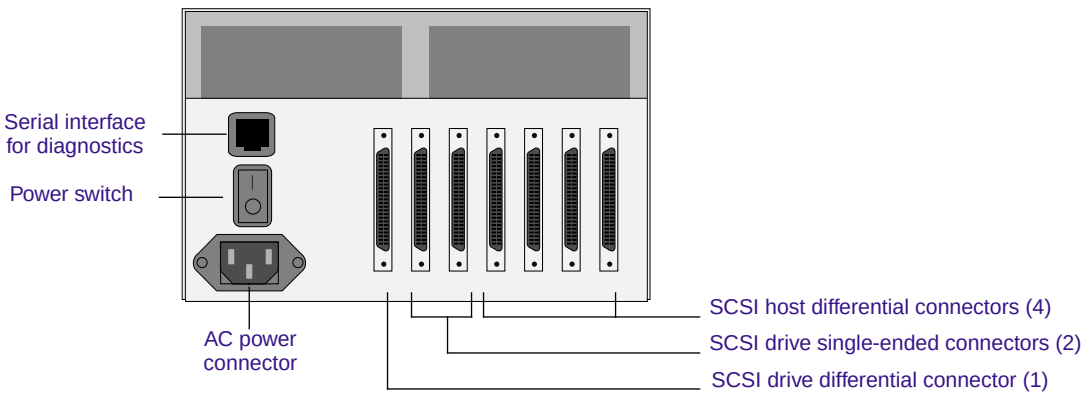

Serial interface for diagnostics
Power switch
AC power connector
SCSI host differential connectors (4)
SCSI drive single-ended connectors (2)
SCSI drive differential connector (1)

Figure 9-17 Avid MediaShare Connectors and Power Switch

Internal MediaShare switch settings can reconfigure the drive ports. See the Avid MediaShare User's Guide for more information.

Connecting Storage Drives to the MediaShare Unit

If you disconnected any external single-ended or differential SCSI storage drives from the Avid system, you can reconnect them to the MediaShare unit. The drives connected in the following procedure will become the shared library of storage drives.

To connect the shared library of storage drives to the Avid MediaShare unit:

1. Connect the SCSI cable to the Avid MediaShare unit as follows:
    a. If connecting a differential cable, plug one end of a 68- to 68-pin differential cable into the differential connector on the back of the MediaShare unit (see Figure 9-17).
    b. If connecting a single-ended cable, plug one end of a 68- to 68-pin single-ended cable into one of the single-ended connectors on the back of the MediaShare unit (see Figure 9-17).

The other end of the cable might already be connected to the external storage drives if you are reconnecting the drives that were connected to the Avid system.

2. Connect the shared library to the Avid MediaShare following the appropriate **"Connecting Storage Drives" on page 151**. Use the MediaShare unit shown in Figure 9-17 in place of the Avid Media Processor in each figure.

Connecting the MediaDock

The MediaDock is a chassis that supports up to eight drives. The drives plug into a backplane in the chassis. The backplane can be split to support two independent SCSI buses; SCSI bus A and B. The SCSI IDs for the installed drives are set and displayed on the MediaDock control panel (see **"SCSI IDs" on page 148**).

The MediaDock chassis can also be positioned on its side and rack-mounted. The MediaDock unit is shown in Figure 9-18. See the *Avid MediaDock Setup and User's Guide* for the many possible storage configurations.

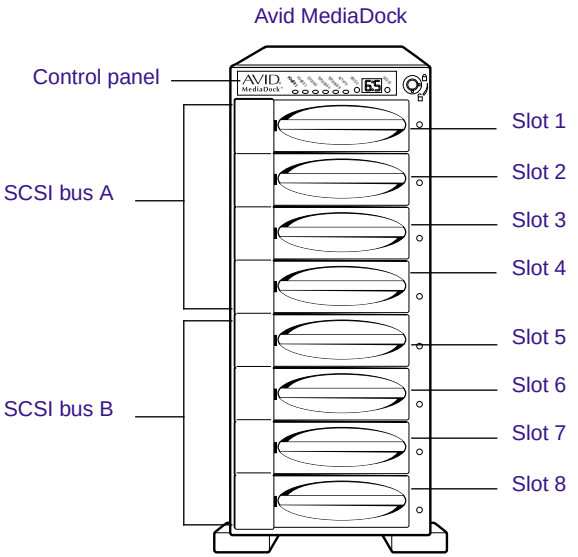


Figure 9-18 MediaDock Slots and SCSI Buses (Tower Configuration)

Avid ships the MediaDock configured for one SCSI bus. You can reconfigure the I/O extender board inside the MediaDock for a dual-bus configuration (two independent SCSI buses). Access to the I/O extender board is provided when the MediaDock SCSI connector panel is removed.

In a dual-bus configuration, two different SCSI boards within one Avid Media Processor, or two separate Avid Media Processors can be connected to the same MediaDock. Information on configuring the SCSI bus and connecting storage drives is provided in the *Avid MediaDock Setup and User's Guide*.

Naming Drives

All fixed and removable drives are formatted before they are delivered to you. For some systems, the drives are given the name Media, so you must give each drive a unique name the first time you start the system.

When turning on the Avid system, each online fixed and removable drive should appear on the desktop.

Do not change the names of drives on the multichannel AirPlay MP systems. The drives are given unique names during system integration and testing. Changing the names of drives connected to the Avid MediaShare confuses the system. If the name is accidently changed, data can be lost. Alert the system administrator.

To name the drive:

1. Highlight the old drive name by dragging the cursor across it.

2. Type a new name and press Return.

3. For removable drives:
    a. First turn off the Avid system, then the hard drives in the chassis.
    b. Open the chassis, slide the drive out, and label it with the assigned name so you can identify it later.
    c. If you have another drive, insert it and turn on the chassis first, and then turn on the Avid system. Repeat steps 1 through 3.

To avoid confusion about which removable drive you are naming, start the Avid Media Processor with a single drive in the chassis.

CHAPTER 10

Multiple Channel Connections

This chapter applies only to multichannel AirPlay MP systems. It explains how to set up the record/engineering workstation by connecting each playback and record channel to a video/keyboard switch, which in turn is connected to a monitor, keyboard, and mouse.

Single-Channel-With-Record AirPlay MP – This system includes Ethernet but not the record/engineering workstation. (See **Chapter 6** for information about connecting each channel to its own keyboard and mouse, and **Chapter 7** for information about connecting each channel to its own monitor.)

Multichannel AirPlay MP – All channels are connected to Ethernet, but only the record and playback channels are connected to the record/engineering workstation. (See **Chapter 6** for information about connecting the control channel directly to its own keyboard, monitor, and mouse.)

See **Chapter 12** *for information about installing the appropriate multichannel AirPlay MP software for using the Ethernet.*

About Connecting Channels

The individual channels in a multichannel AirPlay MP system are connected using the record/engineering workstation and Ethernet. Each playback and record channel is connected to the user interface ADB switch. The user interface ADB switch then connects to the monitor, keyboard, and mouse and is referred to as the record/engineering workstation. In addition, an Ethernet hub connects each Avid Media Processor in the system.

Record/Engineering Workstation

The record/engineering workstation consists of a UI monitor, a keyboard, and mouse. These components connect to the user interface ADB switch, which in turn connects to each record and playback channel.

The record/engineering workstation provides control of one record or playback channel at a time. The workstation can be used to record a new program, play back a story, display the menu bar, bins, and playlists for the selected channel without physically being at that channel.

User Interface ADB Switch

The user interface ADB switch is a video/keyboard switch that lets you choose the channel you want to control. After the Avid system is fully installed and started, use the ADB switch to select the channel you want to operate from the record/engineering workstation (see Figure 10-1). For example, when you press button 1 on the ADB switch, the record/engineering workstation monitor, keyboard, and mouse will control channel 1 of the AirPlay MP system.

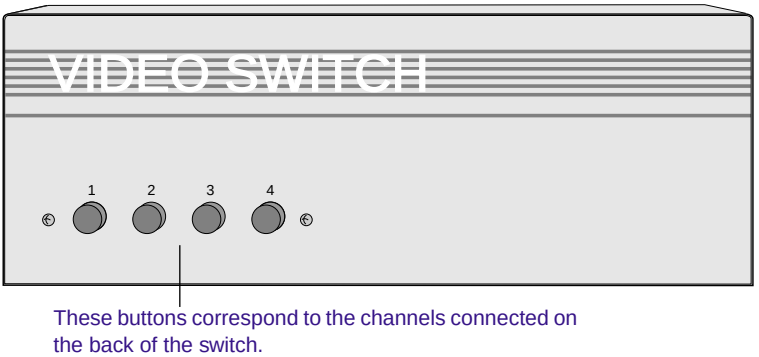


Figure 10-1 User Interface ADB Switch (Front View)

The record/engineering monitor displays the selected channel's user interface, including a command menu bar. You can use keyboard and mouse controls to select channels. Select the channels by typing a command or choosing them with the mouse from the menu bar displayed on the monitor.

ADB Switch Jumpers

Avid sets the jumpers inside the user interface ADB switch before shipping the equipment. These jumpers should not be changed. To verify the jumpers, remove the cover screws located on the sides of the ADB switch. The jumpers are located behind the channel connectors. The jumpers are positioned on pins 2, 4, and 6 for each channel. The jumpers are not numbered; when checking the jumper positions, count them from the top to the bottom.

Connecting the ADB Switch

Connect only the record and playback channels to the user interface ADB switch, not the control channel. To set up a single operator's position for the system, connect all the channels (including the control channel) to the user interface ADB switch.

Figure 10-2 shows how to connect the user interface ADB switch to the channels in a multichannel AirPlay MP system.

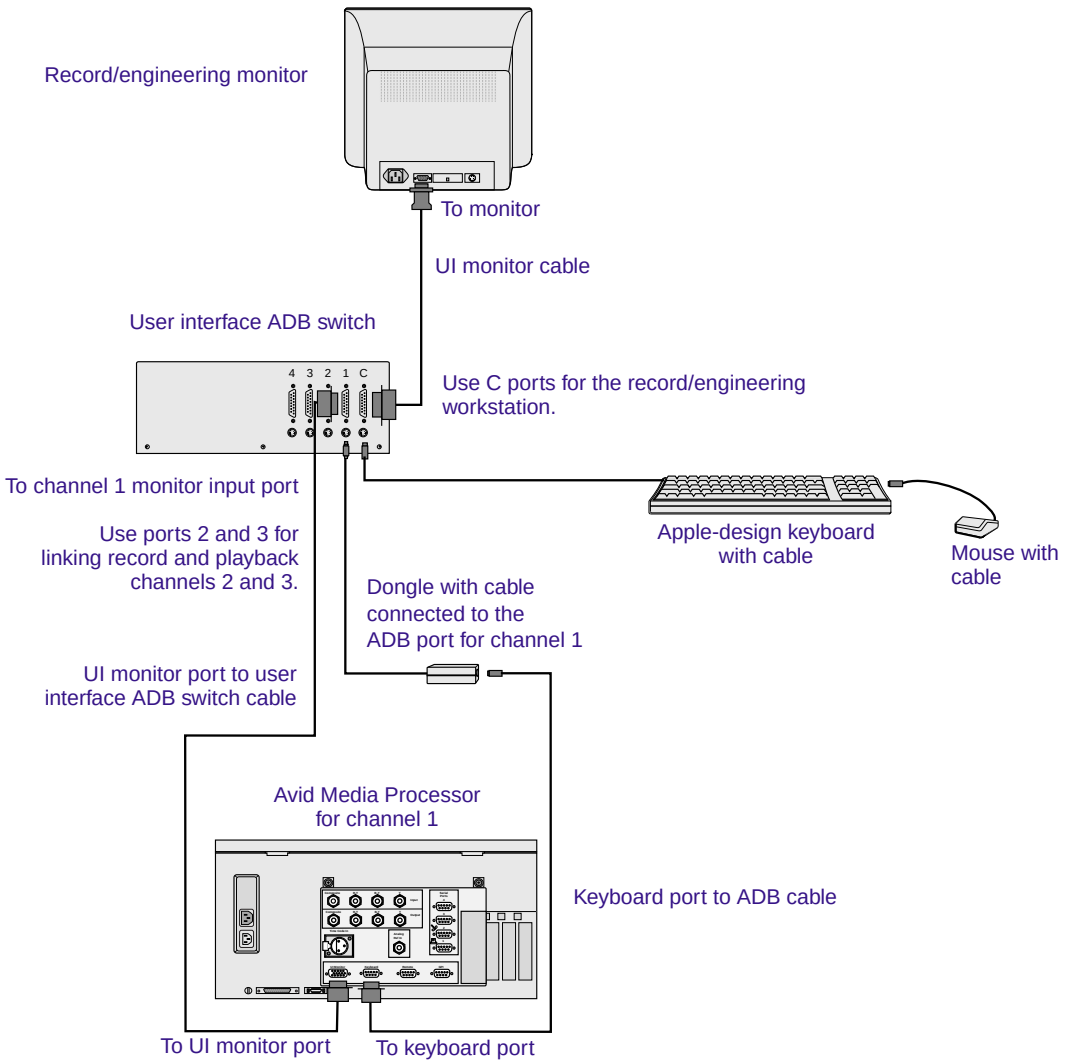

Record/engineering monitor
To monitor
UI monitor cable
User interface ADB switch
4 3 2 1 C
Use C ports for the record/engineering workstation.
To channel 1 monitor input port
Use ports 2 and 3 for linking record and playback channels 2 and 3.
Apple-design keyboard with cable
Mouse with cable
Dongle with cable connected to the ADB port for channel 1
UI monitor port to user interface ADB switch cable
Avid Media Processor for channel 1
Keyboard port to ADB cable
To UI monitor port
To keyboard port

Figure 10-2 Connecting the Record/Engineering Workstation

Trackballs and other input devices that were specifically designed to work with the Macintosh can be installed instead of a mouse.

After installing the multichannel AirPlay MP hardware, install the multichannel AirPlay MP system software to link the channels and activate the record/engineering workstation.

For multichannel AirPlay MP software installation instructions, see Chapter 12.

Connecting Ethernet Channels

Ethernet transfers the control and database information between channels. For example, when you use the control channel to schedule and air playlists on several playback channels, the system controls the process via Ethernet. If you record new material on the record channel, the system uses Ethernet to update the shared database with the new program data for the playback channels. New program data can include clip names, marks, and source tapes for the program.

Figure 10-3 illustrates the Ethernet hub connections to each channel.

The Ethernet connections conform to IEEE 802.3 specifications for 10Base-T networks. Use standard, unshielded twisted pair (UTP) telephone cable for the connections. Avid recommends Category 5 or better cable for external connections.

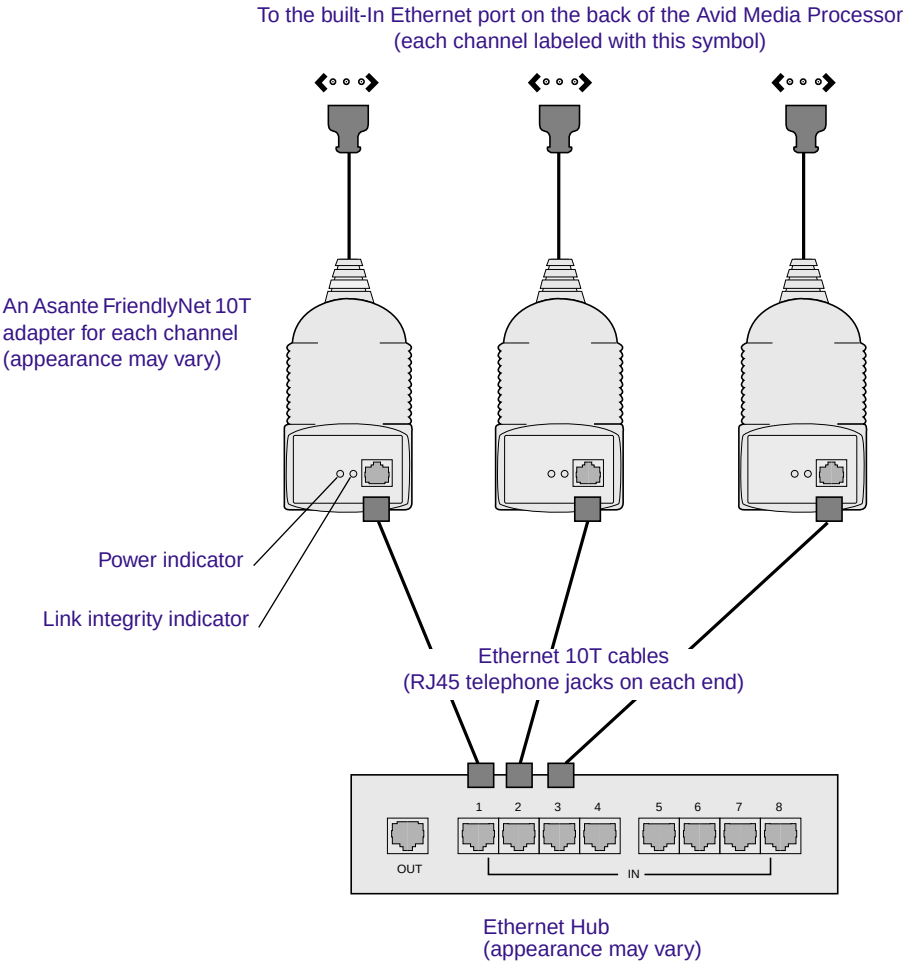


Figure 10-3 Ethernet Connections

CHAPTER 11

Client/Server Hardware

This chapter provides an overview of the AvidNet client/server hardware components. It includes a description of each component and instructions for performing some common procedures.

The server is not supplied by Avid. Your Avid representative can provide you with a list of Avid certified vendors. The ATM switches, Ethernet hub, and MegaDrives are all components of a MediaServer. Your NewsCutter, Media Recorder, or AirPlay MP workstations can all be used as the clients for the MediaServer.

Hardware Overview

Table 11-1 lists the hardware components of the AvidNet client/server system.

Table 11-1 AvidNet Hardware

Item	Quantity	Purpose
Avid certified server	1	Stores and manages bins and media.
Windows NT® database console	1	Console for running Informix® OnLine Dynamic Server software.
Sever programming terminal	1	Interface to server OS and switch.
FORE Systems ATM switches		Handles media data traffic between clients and the server.
ASX-200BX	1 or 2	
ASX-1000 (alternative)	1	
Cabletron SEHI-24 Intelligent Ethernet hub	1	Handles bin and database traffic between clients and the server.
RAID storage		Store media.
MegaDrive	6 arrays	Approximately 24 hours of storage
Ciprico®	2 arrays	Approximately 16 hours of storage
10Base-T Transceiver	1	Connects built-in Ethernet port to Ethernet.
Asante FriendlyNet Macintosh adapter	1 per client	Connects built-in Ethernet interface to Ethernet cable.
Differential SCSI cable	1 per RAID unit	Connects RAID storage to server or another RAID units.

The switches, the Ethernet hub, and the RAID storage are rack-mountable. Figure 11-1 shows a sample layout of the major components.

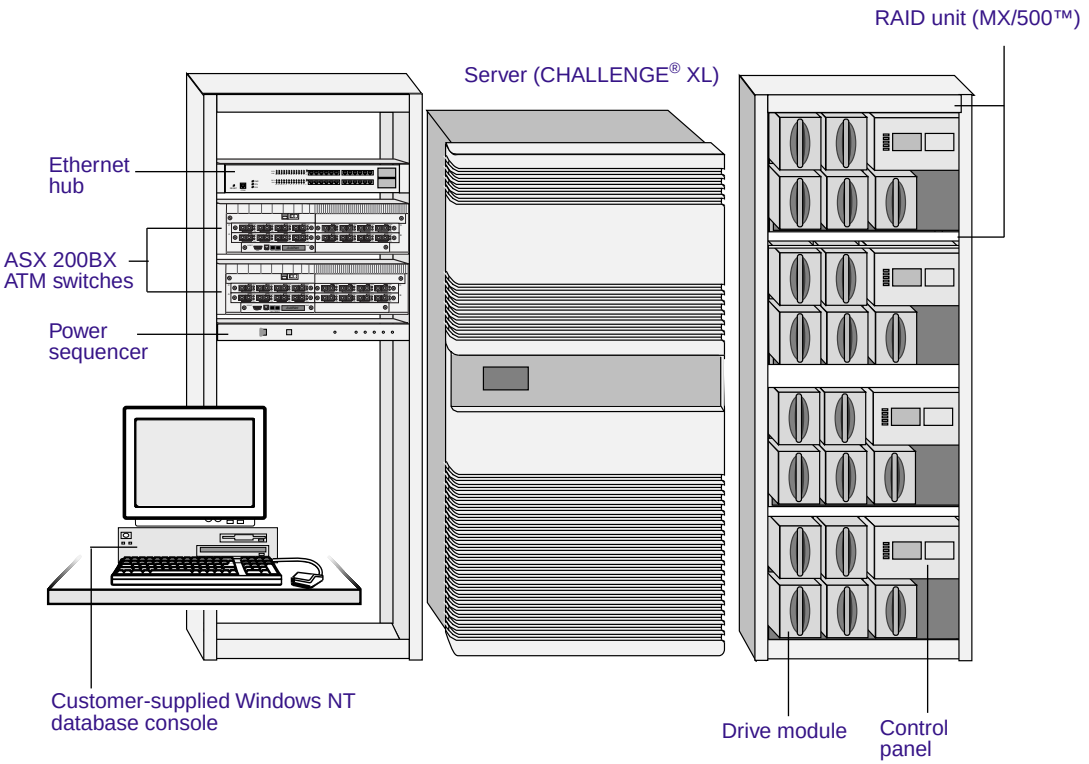


Figure 11-1 Sample CHALLENGE XL Layout

Servers

The server stores and plays back media at the request of clients. The Silicon Graphics CHALLENGE DM and XL servers are the only two Avid certified servers. For operating and hardware information, see the documentation that is provided with the server.

Figure 11-2 shows the CHALLENGE DM server hardware.

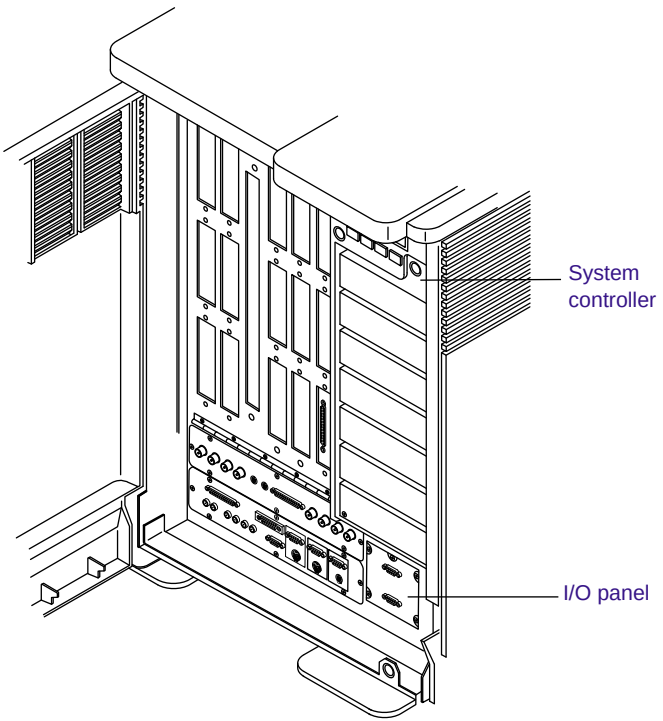


Figure 11-2 CHALLENGE DM Server

Figure 11-3 shows the front of the CHALLENGE XL server hardware.

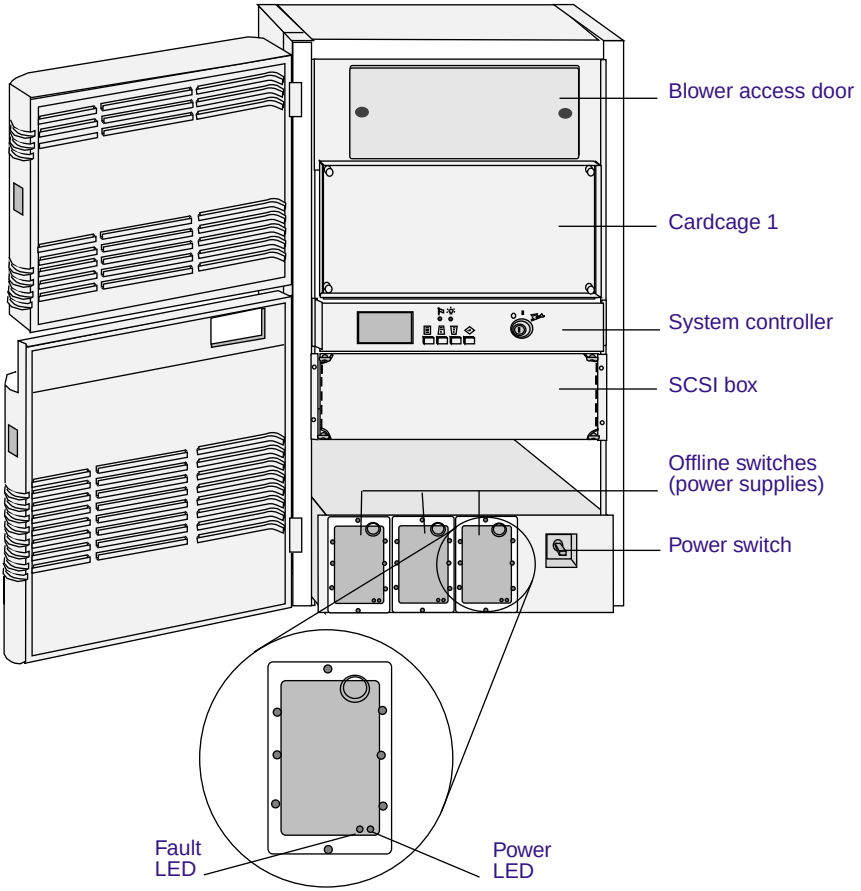


Figure 11-3 CHALLENGE XL Server

Database Console

The customer is responsible for supplying a database console computer with a Windows NT operating system. This console computer requires the components specified in Table 11-2.

Table 11-2 Database Console Requirements

Component	Specification
Processor	Intel® Pentium® Pro; 200 MHz.
Memory	128-MB; internal system memory.
Hard drive	4-GB intelligent device electronics (IDE) hard drive with NTFS format; primary drive that contains the operating system and 3 GB of database information.
Diskette drive	3.5-inch diskette drive; reads and writes to 1.44-MB diskettes. The Avid database installation is distributed on diskette.
CD-ROM reader	Any CD-ROM reader: required for loading software. The On-Line Dynamic Server is distributed on CD.
SCSI accelerator board	Any SCSI board; required for connected SCSI hard drive and tape drive.
SCSI hard drive	3-GB SCSI hard drive; this is a database mirror drive. The drive must be formatted as NTFS. Avid recommends using separate drive controllers for the primary and mirror database drives.

Table 11-2 Database Console Requirements (Continued)

Component	Specification
SCSI tape drives	Two Windows NT compatible, SCSI tape drives; these tape drives must be able to work simultaneously with each other. Both connect to the SCSI accelerator board and are used to back up the database. A minimum of four compatible tapes are required. The total number of tapes depends on the database size.
Network board	TCP/IP compatible network board; required for network and server connections.
Modem	28,000 bps or greater modem.
Monitor	Compatible monitor for console computer; required for viewing the database console information.
Operating system	Windows NT Workstation version 4.0.
Server software	Informix DB server software; "On-Line Dynamic Server" version 7.2.2 or later. Do not use "On-Line Dynamic Server for Workgroups."
Remote software	Timbuktu® Pro for Windows software; version 4.1 or later (supports Windows NT).

ATM Switches

The ATM switches transfer media data between clients and the server. Most AvidNet client/server configurations use one ASX 1000 ATM switch or two ASX 200BX switches. The ASX 1000 ATM switch is over three times the size and functionality of the ASX 200BX. Figure 11-4 identifies the ASX 200BX switch parts.

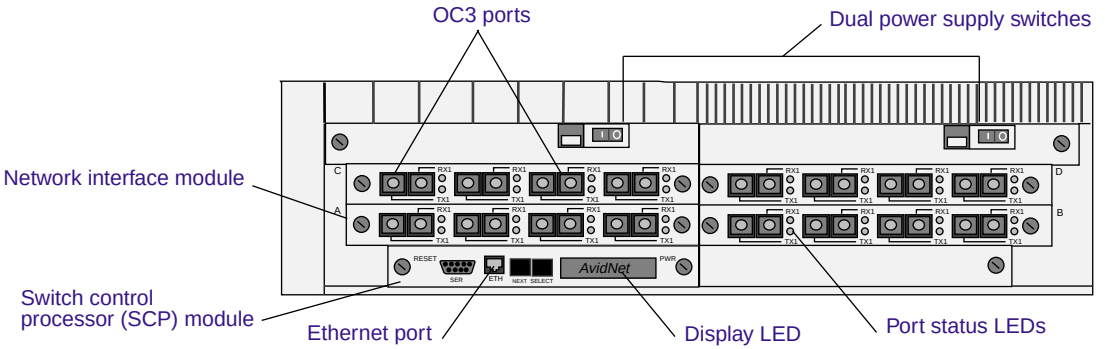


Figure 11-4 ASX 200BX Switch

Network Modules

A typical ATM switch may contain up to four network modules. Network modules are swappable units containing the physical input/output connections to the switch. AvidNet client/server systems use ports with SC-style connectors. For detailed information about the ATM switches, consult the *ForeRunner ASX-200BX/ASX-200BX ATM Switch User's Manual* or *ForeRunner ASX-1000 ATM Switch User's Manual*.

Ports

Ports are the physical input/output connections to the switch. Each port has a transmit connector and a receive connector. Typically, ports are labeled with the prefix of the network module on which they reside (see Figure 11-5).

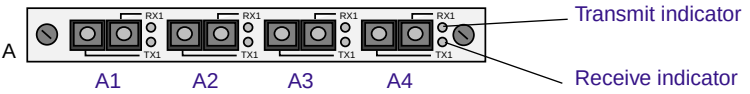


Figure 11-5 Switch Ports

The status LEDs to the right of each port indicate the status of the connection. The top LED describes the status of the receive line, and the bottom LED describes the status of the transmit line. When these LEDs are green, the port is receiving or transmitting data. ATM data transmission is rapid, so the lights may appear to be blinking.

Ethernet Port

The Ethernet port is a 10Base-T port with a standard RJ45 connector. There is a transmit status LED on the left of the port and a receive status LED on the right. The LEDs are green when the port is transmitting normally, and off when the port is not transmitting. If either LED is red, there is a possible problem with the port.

Display Window

During normal operation, the display window shows the name of the switch. During boot and troubleshooting processes, the display window displays status messages and menu options.

Switch Connections

Table 11-3 provides the type of connection between the switches and other components.

Table 11-3 ASX 200BX ATM Switch Connections

From	To	Connection Type
ATM Switch 1		
Port A1	Server ATM board fa0	Fiber
Port A2	Server ATM board fa1	Fiber
Port A3	Server ATM board fa2	Fiber
Ports B1 and up	Client ATM boards	Fiber
Ethernet port	Ethernet hub, port X	Unshielded twisted pair
ATM Switch 2		
Port A1	Server ATM board fa3	Fiber
Port A2	Server ATM board fa4	Fiber
Port A3	Server ATM board fa5	Fiber
Ports B1 and up	Client ATM boards	Fiber
Ethernet port	Ethernet hub, port X	Category 5 Ethernet cable

If upgrading to the 2.0 Release with twelve clients, ports A1 through A4 and B1 are connected to the CHALLENGE ATM boards on both ASX 200 switches.

Switch Administration

The switch in the AvidNet system is preconfigured. Each switch is connected to the Ethernet hub. The only time you will need to log in to the switch is to perform a system upgrade or to fix a problem. For detailed information about the ATM switches, consult the *ForeRunner ASX-200BX/ASX-200BX ATM Switch User's Manual* or *ForeRunner ASX-1000 ATM Switch User's Manual*.

Ethernet Hub

The Ethernet hub routes bin data between the clients and the server. The hub is a Cabletron® SEHI-24. Network printers, NewsView™, MediaServer, and the MediaServer database all connect the Avid Media Processors through the Ethernet hub.

The Ethernet hub looks similar to the one shown in Figure 11-6.

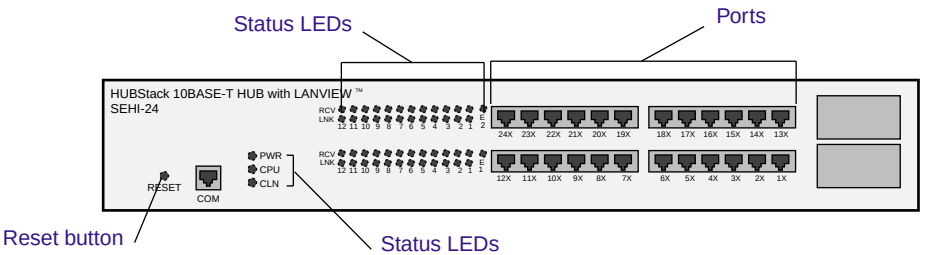


Figure 11-6 Server Ethernet Hub

If the DNG Ethernet network is connected to any other network, a router must be configured to filter out all the broadcast and AppleTalk traffic.

Status LEDs

The status LEDs are part of the Cabletron Systems LANVIEW® Status and Monitoring Diagnostics System. Use the LEDs to monitor the status of various hub components.

Table 11-4 describes the status LEDs.

Table 11-4 Cabletron Systems Status LED

LED	Description
PWR	When this LED is on (green), the hub is receiving power normally. If this LED is off, there is a problem with the hub's power.
CPU	During normal operation, this LED blinks green. The LED turns red if there is a problem with the processor.
CLN	If this LED turns red, a collision has occurred on one of the ports.
RCV	There is one RCV LED corresponding to each port on the hub. When this LED flashes yellow, it indicates that the corresponding port is receiving data.
LNK	There is one LNK LED corresponding to each port on the hub. When this LED is green, a link has been established between the associated cable and the 10Base-T device at the other end of the cable.

For more information about the SEHI-24 Ethernet hub, see the *SEHI-24 10BASE-T Intelligent Stackable Hub User's Guide*.

RAID Storage Units

AvidNet uses RAID storage units to store media files. Ciprico and MegaDrive storage units are described in the following sections.

Ciprico

The Ciprico 7000 is a RAID level 3, high-availability storage device. The medium over which it transfers data to and from the host is fiber-optics. The protocol it uses is Fibre Channel. Fibre Channel is a new ANSI standard designed specifically to provide high-speed data transfers using several network topologies.

The Ciprico array and the Prisa® dual-channel HIO64 adapter board together provide RAID storage to Avid's MediaServer. The Prisa adapter board provides the Fibre Channel interface for the Ciprico array units. Ciprico array units contain nine 9-GB drives. Eight 3.5-inch drives are used to store data, and one drive is a parity drive that can be used to reconstruct data if a drive fails. Ciprico arrays are rack-mounted into Avid racks using Ciprico rail kits.

Use the information in Prisa's *NetFX Fibre Channel Adapters User's Guide* to install the Prisa Fibre Channel adapter. The Ciprico 7000 array is described in the *Ciprico Disk Array 7000 Disk Array Guide*.

Configure the adapter using Ciprico's driver and utility software called "Spectra." Spectra is included on a distribution tape and described in Ciprico's *Spectra Disk Array Installation Guide*.

Figure 11-7 describes the control panel on the front of the Ciprico array.

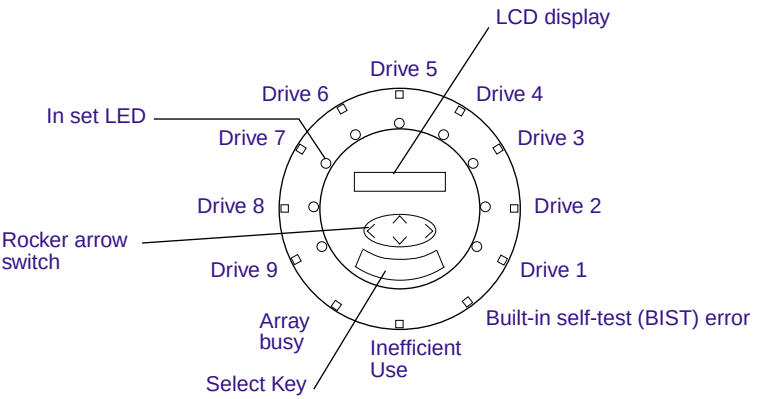


Figure 11-7 Ciprico Front Panel

Table 11-5 defines the controls.

Table 11-5 Ciprico User Controls

Control	Function
Rocker arrow switch	Use the rocker arrow switch to move through the menu.
LCD display	The LCD display shows menu options and failure messages. During normal operation the display reads “ON LINE STATUS OK.”
In set LED	When the LED is lit, the drive is operating as a working member of the array. If the LED is blinking the array is performing a rebuild on the drive.

Table 11-5 Ciprico User Controls (Continued)

Control	Function
Select key	After using the rocker arrow switch to maneuver through the menu, press the select key to selected a new option or default value. Defaults are indicated by an asterisk.

Power Supply Shuttles

The array contains dual hot-swappable power supplies. Each power supply is in an individual shuttle and can be replaced without turning off the array. No manual switching is required to set the input voltage.

Audio Alarm

An audio alarm sounds when any of the following conditions occur in the Ciprico array:

- A drive fails.
- The overtemp sensor detects excessive heat or fan failure.
- A power supply failure or power failure.

The audible alarm can be turned ON or OFF through the menu settings. The default is ON. To temporarily silence the alarm when sounding, press any arrow on the rocker arrow switch.

MegaDrive

MegaDrive storage units contain five 9-GB drives. Four drives are used to store data, and one drive is a parity drive that can be used to reconstruct data if a drive fails. A sixth spare drive is optional.

MegaDrives are rack-mounted four to a rack. Each group of four represents a single volume on the server.

Figure 11-8 shows the front of a single MegaDrive drive array and Figure 11-9 shows the back.

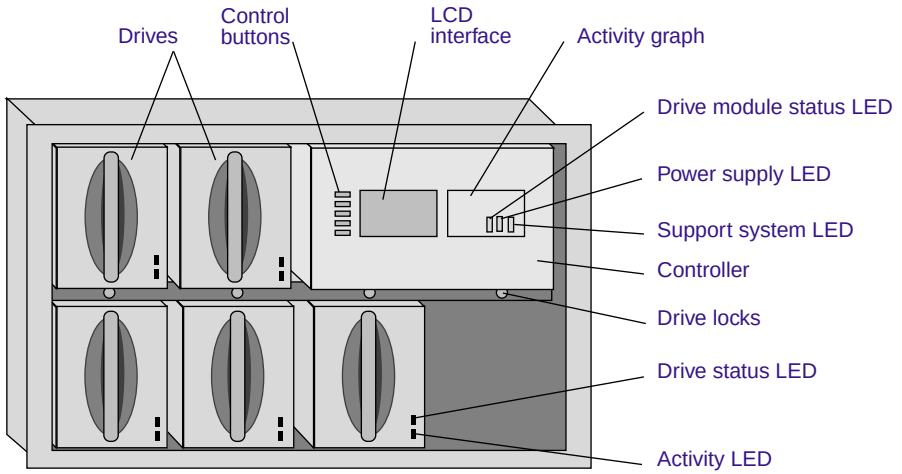


Figure 11-8 MegaDrive Front

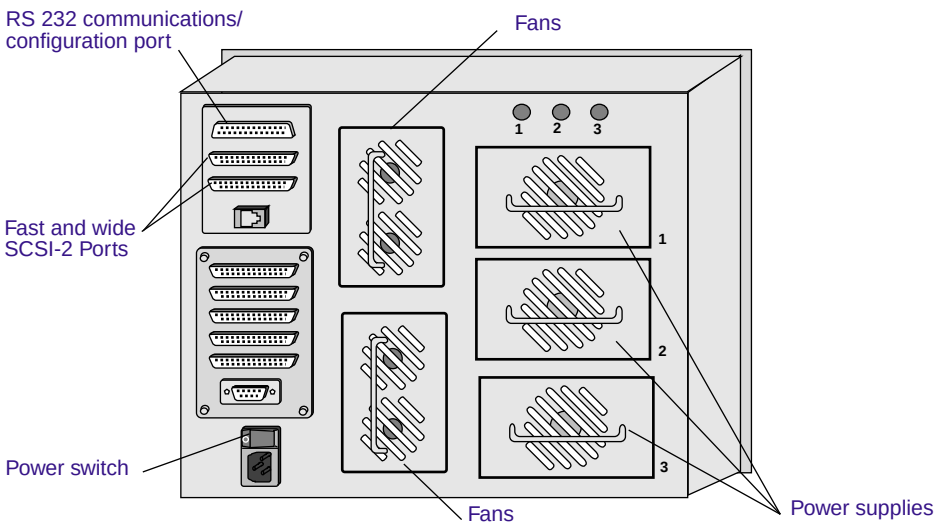


Figure 11-9 MegaDrive Back

LCD Interface

The LCD interface provides a direct interface to the MegaDrive controller. During normal operations, the LCD interface displays the MegaDrive logo. When the MegaDrive is booted or encounters a fault, the LCD displays status or informational messages.

You can use the LCD interface to display the following information about the drive array:

- Current SCSI ID
- Current time and date
- Support system status
- RAID status

Use the menu selection control buttons next to the display to select menus and functions. To make a selection, press the Up or Down button until the selection is highlighted. Then press the Right button to advance to the function menu. Press the Left button to return to the previous screen.

Controller LEDs

The controller displays three LEDs under the activity graph. Table 11-6 shows how to interpret these LEDs referenced in Figure 11-8.

Table 11-6 Controller LEDs

LED	Green	Red	Yellow
Drive module status (left)	Normal	Drive failure. A drive needs to be replaced.	Drive data reconstruction is in progress.
Power supply (middle)	Normal	A power supply has malfunctioned. Check the power supply LEDs on the back of the chassis.	

Table 11-6 Controller LEDs (Continued)

LED	Green	Red	Yellow
Support systems (right)	Normal	One of the fans has failed. Call Avid.	

Drives

Each MegaDrive chassis can house up to six 9-GB drives (the standard is four or five). Drives 1 through 4 contain media data, drive 5 is a parity drive, and the auxiliary drive is an unpowered optional spare. The drives are numbered as shown in Figure 11-10.

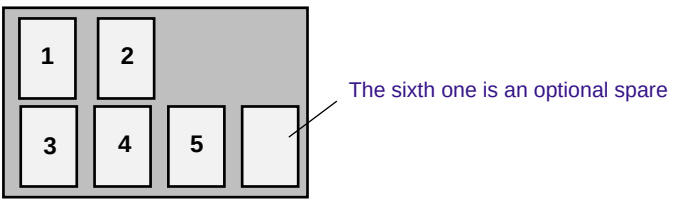


Figure 11-10 MegaDrive Configuration

The drives can be locked into place. You must unlock a drive before you can remove it from the MegaDrive chassis. The lock above drive 5 unlocks the drive controller (see Figure 11-8).

There are two LEDs on the front panel of each drive. The top LED indicates the status of the drive. When the LED is green, the drive is active and operating normally. If the LED is red, the drive has spun down. Either the drive is about to spin up, or it has failed. When a drive fails, an alarm sounds.

The lower LED on the front panel of each drive indicates activity on the drive. This LED glows green when the drive is being read from or written to.

Fault Alarm

If a drive or any other component in the MegaDrive array fails, the MegaDrive sounds an alarm and displays the problem in the LCD interface. The LCD interface shows what has malfunctioned, the time and date of the malfunction, the total number of malfunctions occurring, and what to do to fix the problem.

To silence the alarm, press the Down button next to the LCD.

Power Supplies

Each MegaDrive unit uses three identical power supplies (see Figure 11-9). During normal operation, all three power supplies are active and supply an equal share of power to the MegaDrive.

The power supplies are hot swappable. If a power supply fails, you can change it without shutting down the MegaDrive.

The power supply status LEDs above the power supplies indicate the status of the power supplies. The LEDs and the power supplies are numbered. During normal operation, the LEDs are green. If a power supply fails, the LED corresponding to that power supply turns red.

Fast, Wide SCSI-2 Ports

The MegaDrive unit contains two fast, wide SCSI-2 ports. AvidNet uses these ports to connect MegaDrives to the server or another MegaDrive, depending on the system configuration.

Connections

AvidNet storage is configured (striped) in groups of six RAID units. The racks house up to four RAID units. Each group of four MegaDrive RAID units (1 volume) can store approximately 24 hours of media data at AVR-70 resolution. In configurations of twelve RAID units or fewer, each RAID unit is connected directly to a SCSI port on the server via a differential SCSI cable as shown in Figure 11-11.

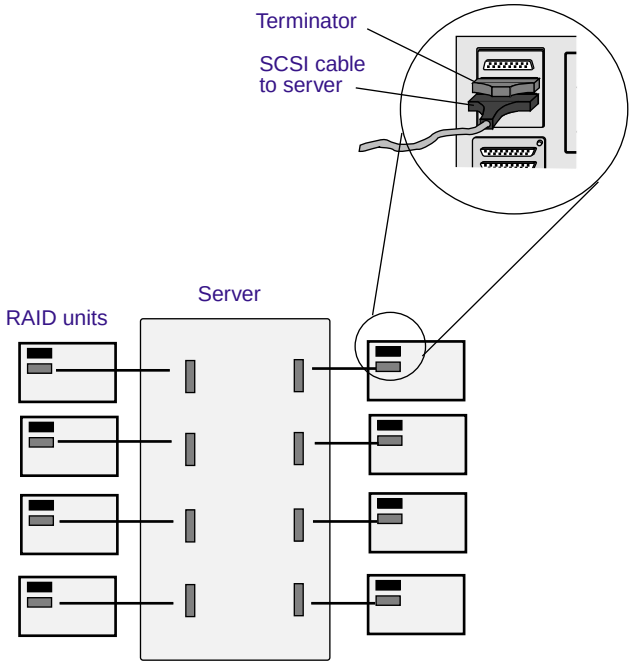


Figure 11-11 Direct RAID Connections to the Server

In configurations with more than eight RAID units, eight are connected directly to the server, and additional units are daisy chained to the first eight, as shown in Figure 11-12.

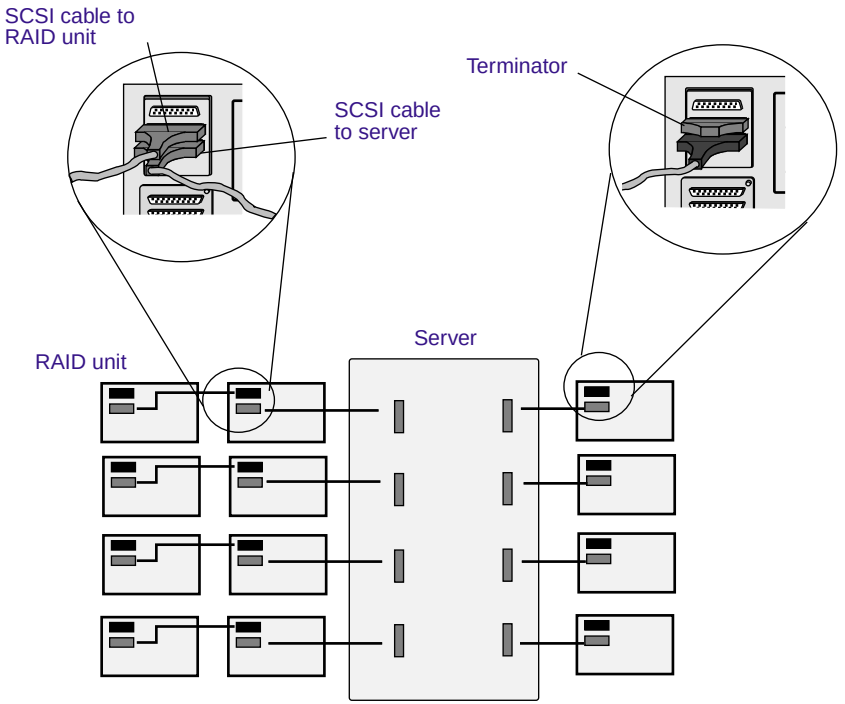


Figure 11-12 RAID Connections to the Server and Other RAID Units

Power Cycling RAID Units

Power cycling RAID units involves shutting them off, then turning them back on again.

1. Shut down the MediaServer application (see **Chapter 13**).
2. Shut down the server.
3. Shut off the RAID unit.
4. With the server terminal at the maintenance menu, turn on the RAID units.

5. Wait for the “online” or “OK” message to appear in the display of each RAID, about one minute after you turn it on.

If the power supply on a MegaDrive unit fails (the alarm will go off), shut off the MegaDrive unit, reseat the power supply, and try again.

The power supply in Ciprico units can be swapped while the unit is running. See the *Ciprico Disk Array 7000 Disk Array Guide* for more information.

Swapping RAID Unit Drives

You can swap drives in a RAID array while the unit is running. To swap a drive:

1. Pull out the bad drive.
2. *Gently* plug in the spare. The drive connectors engage with very little force.

For additional information about the MegaDrive arrays, see the *MegaDrive MX/500 RAID User Guide*. For Ciprico arrays units, see the *Ciprico Disk Array 7000 Disk Array Guide*.

CHAPTER 12

Configuring Multichannel AirPlay MP

This chapter describes how to configure multichannel AirPlay MP systems. Before configuring the multichannel AirPlay MP, install the basic software on each individual channel, as described in the *Release Notes*.

The AirPlay MP 4.0 release does not support multichannel configurations.

Failing to follow the startup instructions in this chapter could damage the Avid Media Processor or storage disk drives.

Linking Multichannel AirPlay MP Channels

The following procedures explain how to use the multichannel software to select record and playback channels and link these channels to the control channel. Once the system is installed and operational, the channels communicate automatically.

Naming the Channels and Enabling Program Linking

When installing or configuring the software, do not turn on the shared library drives until all the software installation and settings are completed. The central library data and drive configurations could get corrupted.

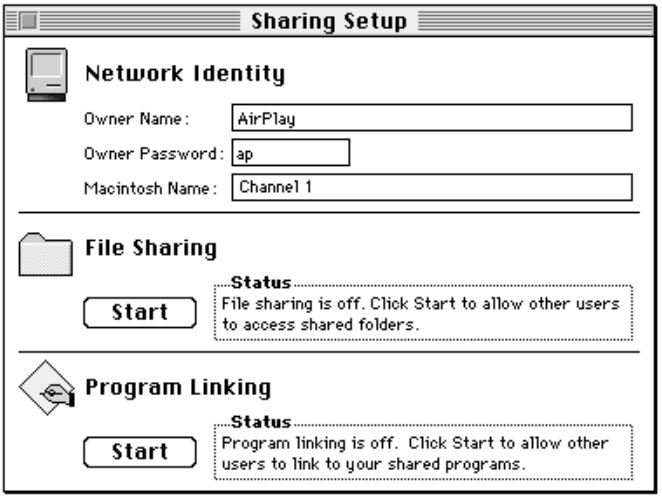
To name the channels and enable the program linking:

1. Start the Avid Media Processor for each channel in the system.
2. Use the record/engineering workstation to access the desktop, or startup screen, for the first record or playback channel.

The record/engineering monitor should display the Apple menu bar for the record or playback channel you are configuring. Switch between channels by pressing the user interface ADB switch channel buttons. Use the record/engineering workstation to enter the configuration options described next.

3. Choose Control Panels from the Apple menu.
4. Double-click the Sharing Setup Control Panel to open it.

5. Type the following information in the Sharing Setup window:
   - *AirPlay MP* as the owner name.
   - *ap* as the owner password.
   - *Channel 1* (if appropriate) as the Avid Media Processor Name.

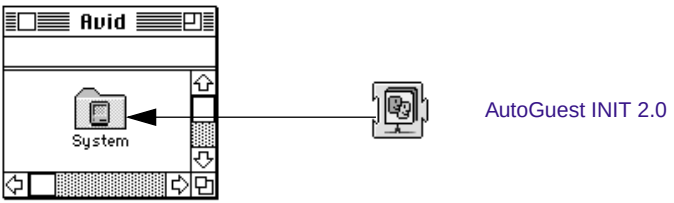


6. Next to Program Linking, click Start to turn on the linking option.
7. Repeat steps 1 through 6 for each remaining record and playback channel in the system. Name the successive channels *Channel 2*, *Channel 3*, and so on.

AutoGuest

The AutoGuest init is installed in the System Folder for *each* channel in the system. When AutoGuest is enabled, the enabled channels can share files with each other.

The System Folder is located on the Avid startup disk on the desktop, or startup screen, for each channel.

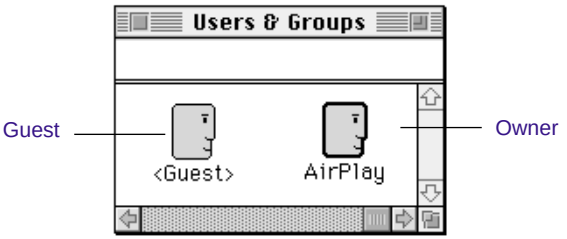


Completing the Channel Links

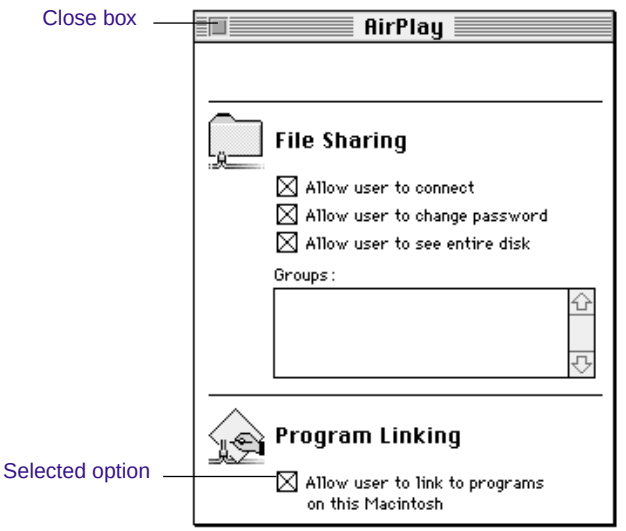
Follow these directions for each channel in the system, including the control, record, and playback channels.

1. Use the record/engineering workstation to access the desktop, or startup screen, for a channel.
2. Choose Control Panels from the Apple menu.
3. Double-click Users & Groups.

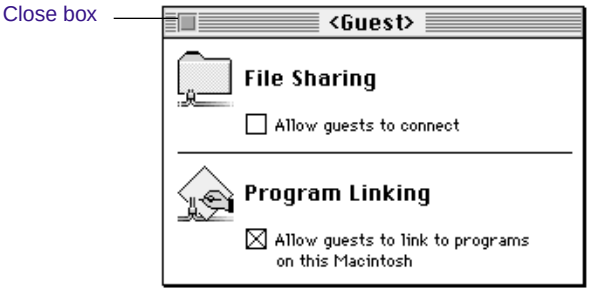
4. In the window that opens, double-click AirPlay, which is the owner name.



5. Select Program Linking in the next window that appears, then click the close box to return to the Users & Groups window.



6. Double-click the Guest in the Users & Groups window and select Program Linking in the window that opens.



7. Close the Guest window.

8. Repeat the steps in this section for each remaining channel in the system.

9. Close the Users & Groups window and start the AirPlay MP software on each channel. To launch the AirPlay MP software:

   a. Double-click the Avid system drive icon.

   b. Double-click the Avid AirPlay folder icon.

   c. Double-click the AirPlay icon.

Configuring Access to the Central Disk Array

Only the record channel has write access to the central disk storage array. The other channels have read-only access. Write protection is done by mounting the volumes on each channel as read-only or read/write, based on a file in the system folder and an application that runs at startup on each Avid Media Processor.

The first time the multichannel AirPlay MP system is launched, access should be correctly configured for all channels on the system. Most systems are configured by Avid. By default, new disks are configured with write access for all channels. If you are adding additional disks, you should lock all channels, except the record channel.

If you assign two channels write access to the same volume, you will corrupt the volume. Do not change write access unless you are certain of what you are doing. If you are unsure, call Avid Broadcast Customer Support.

Multichannel AirPlay MP storage uses a specific naming scheme. Media drives that are part of the central storage are named *shared libraryn*, with *Shared library* indicating that the volume is part of central storage and *n* indicating the name of the specific partition. Local drives are named *Localn*, with *Local* indicating that the volume is not part of central storage and *n* indicating the name of the specific partition (1 – 99).

When names are changed on shared library drives, power off all other channels, perform the name change (preferably on the record channel with write access), and reboot the channel where the changes were made.

Verify the lock status of the other channels from within VScanner volume information command, one channel at a time. Failure to do so could corrupt one or more drives and cause system failures. The VScanner icon is located in the Avid AirPlay folder.

Changing the naming scheme of shared volumes affects media sharing.

1. Double-click to open the SCSI-NET preferences file in the System Folder on the Avid system drive. Perform this step on the desktop, using TeachText® or a text-only word processor.
2. Complete the following steps for each volume that you want to modify:

a. Scroll to the volume name. If you rename a volume, do not use leading or trailing spaces or change the *shared library* prefix.

b. On the next line type L to lock the drive or U to unlock a drive. Unlocked drives have write access to the central disk array.

Do not assign two channels write access to the same volume.

c. Type 0 (zero) to indicate how frequently the drive information should be updated. This is an Avid system requirement.

Configuring the Multichannel AirPlay MP System

When setting up the multichannel AirPlay MP system for the first time, locate and identify which are the playback, record, and control channels. These channels only need to configured once. Generally, one person at each site is assigned to administer the system. This person is usually responsible for maintaining the databases and deleting outdated media files.

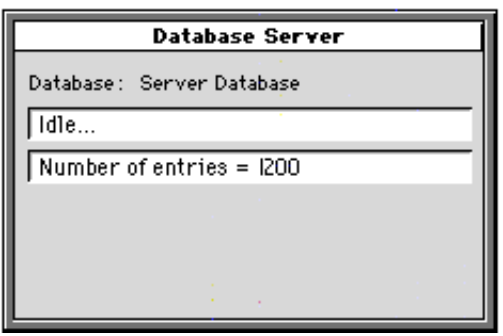
The control channel in a multichannel AirPlay MP system communicates with the playback channel via an Ethernet network.

Multichannel AirPlay MP uses a database application to move information about clips between channels. For example, if you change the Mark IN on an event in the control channel, the database changes the mark on all channels.The AirPlay MP database application must be running on a channel for multichannel AirPlay MP to function properly. Most systems come preconfigured. The easiest method is to place the AirPlay MP database application in the Startup Items for the record channel. See the Macintosh documentation for information on Startup Items.

AirPlay MP automatically creates a bin called *AirPlay Database bin*. This bin provides easy access to new material on the system. For example, if you record new clips on the record channel, the new clips appear in the AirPlay Database bin. You can then drag the clips to a different bin. Since all new clips appear in the AirPlay Database bin, the bin could easily contain thousands of clips for commercial insertion applications. This would make it very difficult to identify new material. The most efficient method is usually to organize clips by ID numbers or kill dates. For example, have bins “0-100”, “101-200” if organized by tape ID numbers.

Understanding the Database Server Window

The Database Server window provides information about the exchange of bin information.The window displays the number of items currently on the system, and flashes when information is being transferred. For example, if you set a Mark IN in a clip on the control channel, this information is sent to each additional channel on the system.



Quitting from the Database Server Window

The Database Server window does not have a Close box; it usually runs in the background on the control or record channel. Click in the Database Server window to activate the window.

Choose Quit from the File menu to close the window and leave the application.

Relaunching the Database Server Window

Avid systems ship with the AirPlay•Database alias in the Startup Items folder. The Database Server window opens automatically when the Avid Media Processor is turned on. There are two options for relaunching the application after quitting:

- Double-click the database application in the Startup Items folder.

  The Startup Items folder is located in the System Folder on the Avid system drive.

- Restart the Avid Media Processor.

Configuring Playback Channels

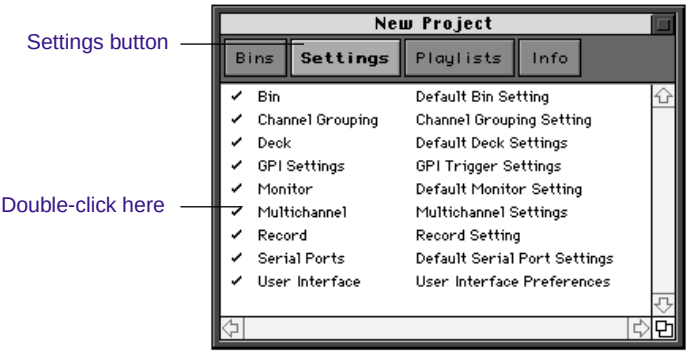
During playback, some functions are monitored from the control channel, not the playback channel. For example, timecode displays update on the control channel, not the playback channel.

1. Start the Avid Media Processors and launch the AirPlay MP software. For information see **Chapter 13**.

   The AP•Database will automatically launch on the record channel.

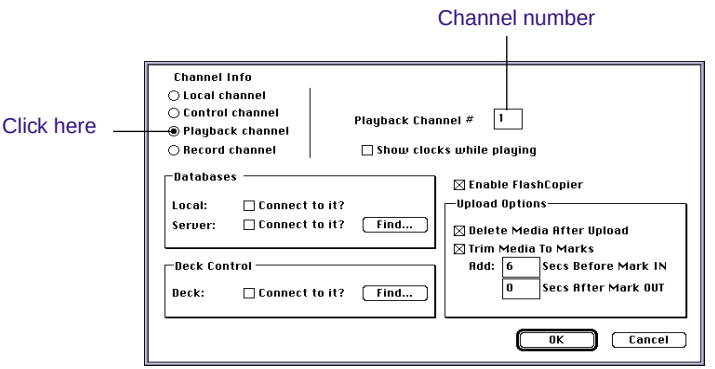
2. At an Avid Media Processor that you want to be a playback channel, click the Settings button in the Project window.

3. Double-click Multichannel.



The multichannel dialog box appears.

4. To choose the playback channel, click next to Playback channel.

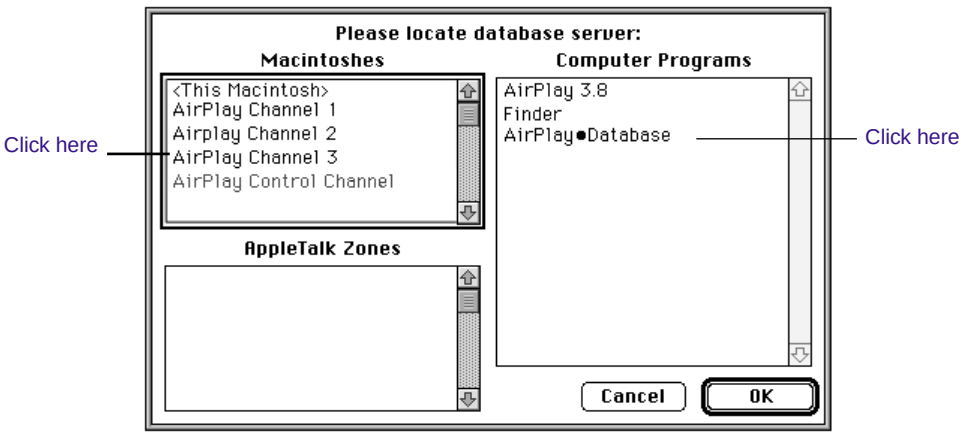


5. Type the correct channel number.
6. If the system is a single channel with record, click to select Show Clocks While Playing.

This option updates time displays on the playback channel during playback. If the system has a control channel, do not select this option because updating displays requires additional processing time.

7. Click to select Connect To It for the Local Database.
8. Click to select Connect To It for the Server Database.
9. Click Find to find the server database application.

   A dialog box opens. Your system might not display any AppleTalk Zones. This is normal.



10. Click to select AirPlay record channel (that is, Channel 3).
11. Click to select the database server, and click OK.

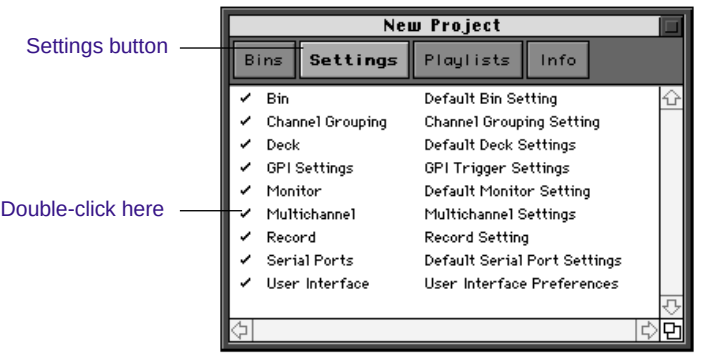
    The application is usually stored in the AirPlay Folder on the control channel. It is called *AirPlay•Database*.

12. Click OK or press Return.
13. Complete steps 2 through 12 on each subsequent playback channel.

Configuring the Record Channel

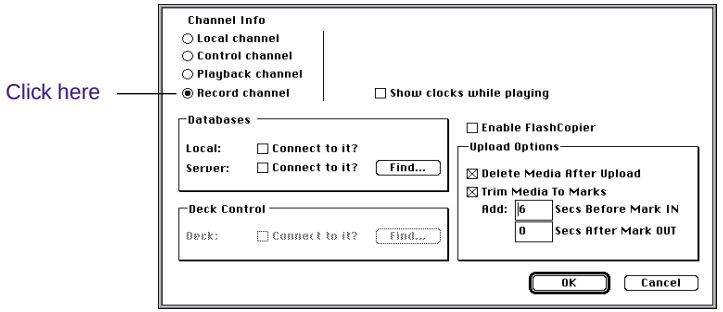
To configure the record channel:

1. Complete the steps in **"Configuring Playback Channels" on page 201**.
2. At the Avid Media Processor system that you want to be the record channel, click the Settings button in the Project window. (On a three-channel system, channel 3 is usually the record channel.)
3. Double-click Multichannel.



The multichannel dialog box appears.

4. To choose the record channel, click next to Record channel.



5. If the system is a single channel with record, click to select Show Clocks While Playing.

This option updates time displays on the record channel during playback and recording. If the system has a control channel, do not select this option because updating displays requires additional processing time.

6. Click to select Connect To It for the Local Database.
7. Click to select Connect To It for the Server Database.
8. Click Find to find the Server Database application.

   A dialog box appears.
9. Click to select the application and click OK.

   The application is usually stored in the AirPlay Folder on the control channel. It is called *AP•Database*.
10. Click to select the appropriate options:
    - Click to select Delete Media After Upload if you want to automatically delete media files from the record channel's local drives after they are transferred to the shared disks.
    - Click to select Trim Media To Marks if you want to transfer only the material between marks to the shared disks.

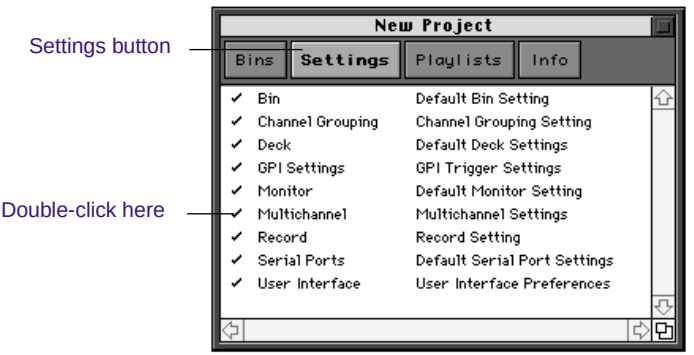
- If you select Trim Media To Marks, type a handle size in the Add Secs Before Mark IN and Secs After Mark OUT boxes. This provides handles on each event in case you need to reset the marks.

11. Click OK or press Return.

Configuring the Control Channel

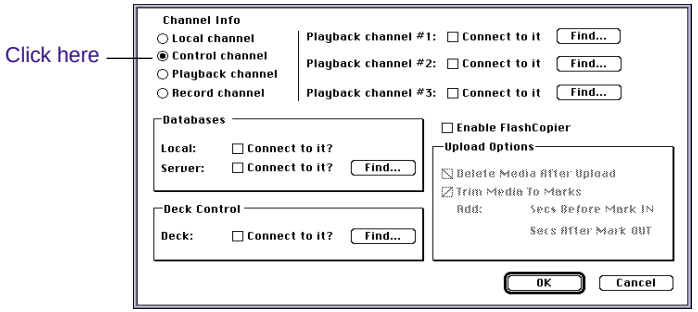
To configure the control channel:

1. On the Avid Media Processor that serves as the control channel, click the Settings button in the Project window.
2. Double-click Multichannel.



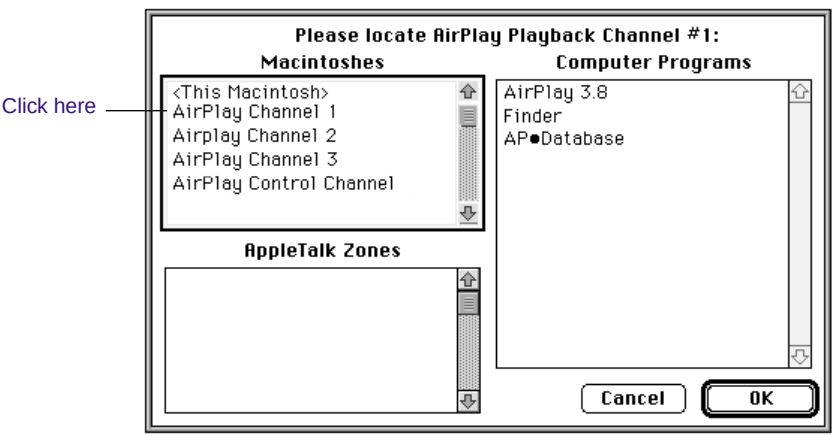
The multichannel settings dialog box appears.

3. Click next to Control channel.



4. Click the check box next to Playback channel #1 Connect to it.
5. Click Find, next to Playback channel #1 Connect to it.

   A dialog box opens.



6. Click to highlight AirPlay Channel 1.
7. Click OK or press Return.
8. Repeat steps 4 to 7 for any additional playback channels on the system.

9. Click to select Connect To It for the Local Database.
10. Click to select Connect To It for the Server Database.
11. Click Find to find the Server Database application.

    A dialog box appears.
12. Click to select the application and click OK.

    The application is usually stored in the AirPlay Folder on the control channel. It is called *AP•Database*.
13. Click OK or press Return.

Changing Media Sharing from the Status Bar

Instead of using the multichannel settings, you should configure the downloading of media from the Status Bar window. On playback channels, you can select or deselect the Download Media options.

While material is being transferred, the name and ID of the clip being transferred appear in the Status Bar menu. A thermometer appears to show the progress of the transfer. When the transfer is complete, you can click the menu for a pop-up listing of the clips that were transferred. Playlist events are highlighted in green during downloading.

Click to select or deselect the Media Sharing button in the Status Bar window. The green indicator is lit when downloading or uploading is selected.

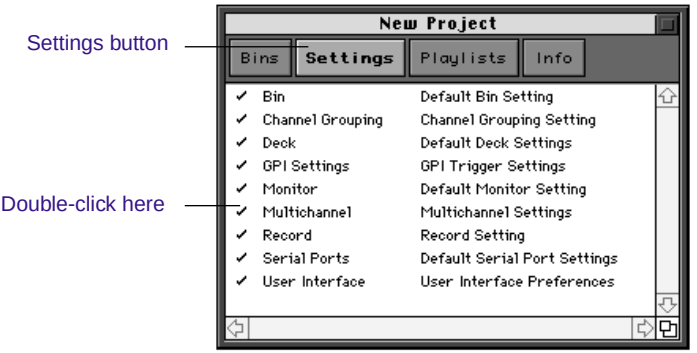
The following illustration shows playback channel 1 configured to download media from the shared drives.

You should download events to the local drives before playing. You can only play directly from the central disk array if no other channel is accessing the disk array. For example, if the record channel began uploading while you were playing from the central disk array, the system would experience video underruns. Events that are not local display a "Media is Not Local" warning in the playlist. For information on warnings, see the *Avid AirPlay User's Guide*.

Taking Local Control of a Channel

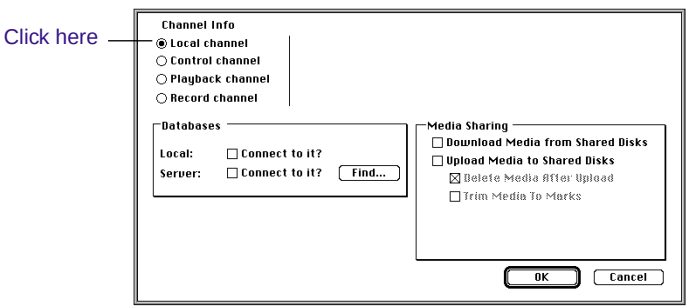
Each channel on a multichannel system is independent. For example, one channel can be taken offline to perform maintenance, without affecting the additional channels. To take a channel offline:

1. Click the Settings button in the Project window.
2. Double-click multichannel.



The multichannel settings dialog box appears.

3. Click next to Local channel.



4. Click OK or press Return.
5. To bring the channel online again, you must complete the steps described in **“Configuring Playback Channels” on page 201**.

Grouping Channels

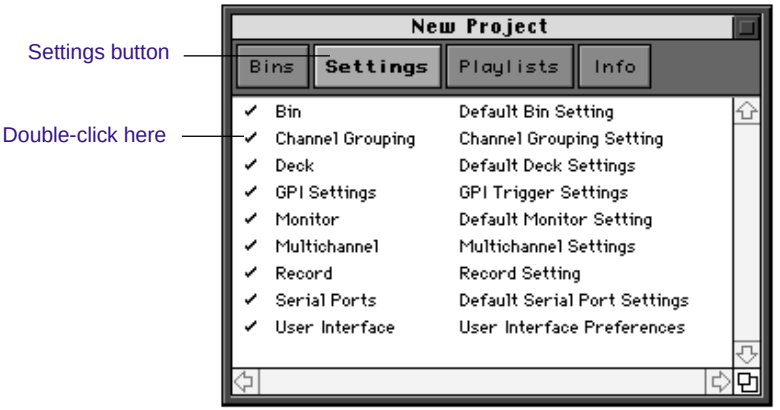
You can group channels to provide simultaneous rolling, redundancy, or multicasting. When you play a grouped playlist in the control channel, the active playlist simultaneously plays in each grouped channel. The active playlist in each channel is indicated by the red position arrow. For redundancy, load the same playlist in two channels. For multicasting, open different playlists.

You can also group channels by using a GPI to command the channels to play. The system must include a V-LAN VLX or Avid GPI controller to use GPIs.You can connect a single GPI controller to the control channel to command the grouped playback channels to play, stop, recue, or skip. However, GPIs on the control channel will always command the currently selected channel or channel group. You could also connect GPI controllers to each playback channel. The advantage of connecting a GPI controller to each channel is that the system does not have a single point of failure. For information on using GPIs, see the *Avid AirPlay User's Guide*.

Before playing a group playlist, make sure that each channel is in Standby and Auto Mode.

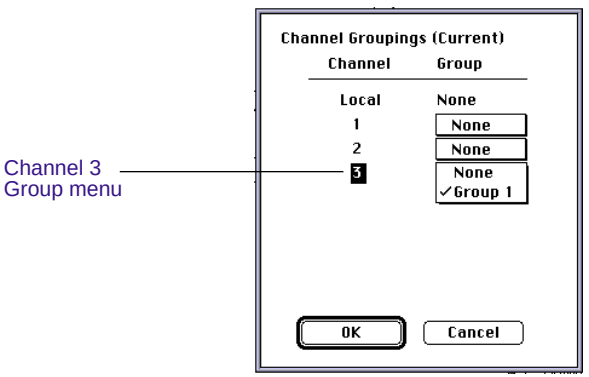
1. On the control channel, click the Settings button in the Project window.

2. Double-click Channel Grouping.



The Channel Groupings dialog box appears.

3. For each channel that you want to group, choose Group 1 from the group pop-up menu that appears.

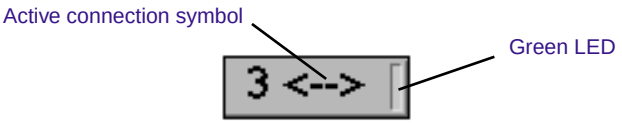


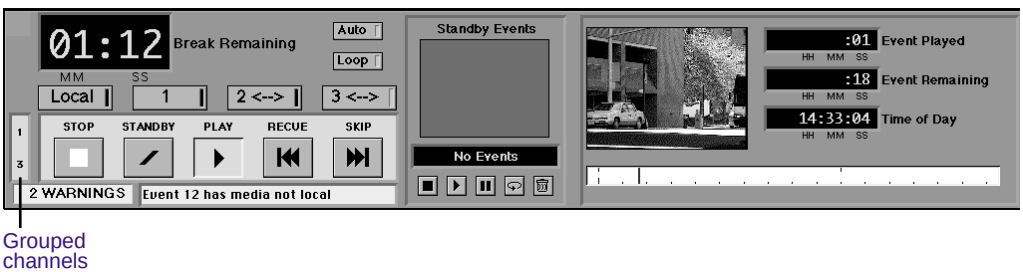
4. Click OK or press Return.

5. To remove channels from the group, complete steps 1 to 4, but choose None from the pop-up menu.

To loop grouped channels, activate each playlist and click the Loop button.

Grouped channels are indicated in the Status Bar panel. In the following example, channels 1 and 3 are grouped together. The green LED is lit for the active channel. Playback channels that are controlled by the control channel are indicated with an Active Connection symbol in the channel selector.





CHAPTER 13

Starting Up and Shutting Down

This chapter describes how to start up and shut down all Avid DNG systems. When powering on for the first time, or after reconfiguring the storage devices, double-check the following:

- All interface and power cable connections
- SCSI IDs
- SCSI termination

Failure to follow the instructions in this chapter for starting up and shutting down the system could damage the Avid Media Processor or storage drives.

Drives installed in the MediaDock may be pulled out without powering off the MediaDock and Avid DNG system. The drive must first be unmounted from the desktop and then spun down using the MediaDock control panel. See the Avid MediaDock User's Guide for details.

Do not unplug external MediaDrives while the drives are turned on, or you will damage the Avid Media Processor and the drive.

Starting Up and Shutting Down Systems

The following procedures explain how to launch and shut down NewsCutter, Media Recorder, single-channel AirPlay MP, and the AirPlay MP/NewsCutter combination systems.

See **"Starting Up and Shutting Down Multichannel AirPlay MP Systems" on page 219** for information about multichannel AirPlay MP systems.

Starting Up the System

AirPlay MP systems are shipped with a power sequencer. All AirPlay MP components are connected to the sequencer. When the power sequencer is turned on, all of the AirPlay MP components are turned on in the proper sequence.

To start up a system:

1. Insert any removable disk into the system (skip this step if the system does not have removable disks).
2. Turn on the external drives (if any) in the following order:
   - MediaDock
   - MRS
   - RAID enclosures
   - External MediaDrives

   Wait 15-30 seconds for the drives to spin up before starting the Avid Media Processor, or it will not communicate with the drives successfully.
3. Turn on all other hardware except the Avid Media Processor.

4. After all other hardware has been on for 10 seconds, press the power-on key at the top right corner of the keyboard (see Figure 13-1).

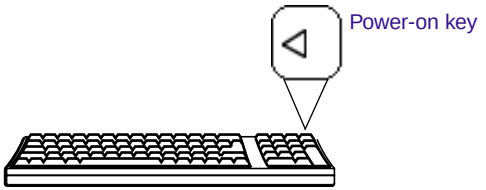


Figure 13-1 Power-On Key

The Avid Media Processor goes through its startup process, then the desktop appears.

5. Double-click the Avid system drive icon.
6. Double-click the Avid application folder icon.
7. Double-click the Avid application icon for the system.

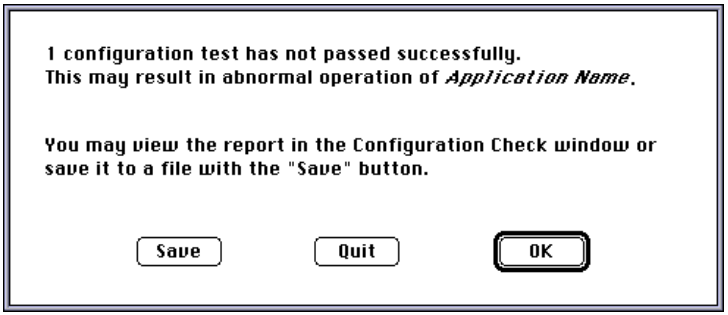
The application launches and the Project Selection dialog box opens.

Create an alias of the application icon and place it on the desktop. Then double-click the alias to launch the Avid system. See the online Macintosh Guide for instructions.

If the Application Fails to Launch

Each time the application is launched, the software checks the system configuration. The system checks for all necessary supporting files and control panels.

If a supporting file is missing, there are initialization (INIT) conflicts, or hardware problems are found, a dialog box similar to the following appears.


1 configuration test has not passed successfully.
This may result in abnormal operation of Application Name.
You may view the report in the Configuration Check window or save it to a file with the "Save" button.
Save
Quit
OK

Choose the appropriate option:

- Click Save to save a copy of the report. A window might open asking where to the save configuration report file on the Avid Media Processor.
- Click Quit to stop the software from launching.
- Click OK to launch the application. The software will launch, but problems may occur (depending on the detected failure).

Displaying Configuration Information

The configuration report can be displayed while in the application. Choose Configuration from the Windows menu to view the report. A report of the complete test or only the information about configuration tests that did not pass be can displayed. While the Configuration Check Report window is displayed:

- Choose Show Full Listing from the Edit menu or press ⌘-L to display all the configuration test results.
- Choose Show Brief Listing from the Edit menu or press ⌘-K to display only the problems found (if any).

This configuration report can also be displayed when not in the application by using Apple's SimpleText.

Shutting Down the System

To shut down the system:

1. Quit the application and back up the bins and projects.

Avid recommends that you safeguard the project by backing up the bins and projects on 3.5-inch diskettes before shutting down the system. See **Chapter 14** *for information on backing up bins and projects.*

2. Choose Shut Down from the Special menu to turn off the Avid Media Processor desktop.

3. Shut down each disk drive.

   For removable disks, turn off each removable disk in the chassis and then the chassis itself. Then remove the disks from the chassis, if needed.

4. Turn off the remaining hardware.

Starting Up and Shutting Down Multichannel AirPlay MP Systems

These directions explain how to start up and shut down all multichannel AirPlay MP systems. See **"Starting Up and Shutting Down Systems" on page 215** for information about NewsCutter, Media Recorder, and single-channel AirPlay MP systems.

Starting Up Multichannel AirPlay MP Systems

When setting up the multichannel AirPlay MP system for the first time, locate and identify which are the playback, record, and control channels. For information, see **Chapter 12**.

To start up a multichannel system:

1. Turn on all the peripheral hardware, such as the audio interfaces and Video Slave Drivers, for all the channels.
2. Turn on all the buffer storage disks.

   The buffer disks are contained in the MRS enclosures connected directly to each channel.
3. Turn on all the disks that are part of the shared library, wait 10 seconds, then turn on the Avid MediaShare.

   The shared library of disks is attached to the Avid MediaShare and can include MRS and RAID enclosures.
4. Start the channels one at a time, with the control channel last:
   a. Press the button for the channel on the user interface ADB switch to select the channel that the record/engineering workstation controls (see Figure 13-2).

b. Press the power-on key at the top right corner of the record/engineering keyboard. This keyboard is connected to the user interface ADB switch (see Figure 13-2).

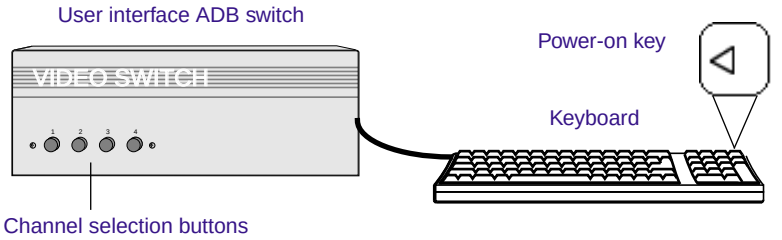


Figure 13-2 User Interface ADB Switch and Power-On Key

The Avid Media Processor for the selected channel goes through its startup process, then the desktop appears.

c. Start the multichannel AirPlay MP application on the channel.

Double-click the Avid system drive icon. When the Avid application folder icon appears in the Avid disk directory window, double-click the AirPlay icon.

The application launches and the Project Selection dialog box opens. Select an existing project or create a new project. See the *Avid AirPlay User's Guide* for more information.

d. Repeat steps a to c to start each additional record and playback channel, then start the control channel last.

Create an alias of the application icon and place it on the desktop, then double-click the alias to launch the Avid system. Or install the AirPlay MP software in the Startup Items of the System Folder, then AirPlay MP launches automatically when starting up the Avid Media Processor for the channel. See the Macintosh documentation for instructions.

Shutting Down Multichannel AirPlay MP Systems

Always shut down the system in the correct order.

Failure to follow the instructions in this chapter for shutting down the system could damage the Avid Media Processor or storage disk drives.

1. Shut down one channel at a time:
   a. Quit the application and back up the bins and projects.

Avid recommends that you safeguard the project by backing up the bins and projects on 3.5-inch diskettes before shutting down the system. See **Chapter 14** *for information on backing up bins and projects.*

   b. Choose Shut Down from the Special menu to turn off the Avid Media Processor.

2. Shut down each disk drive.

   For removable disks, turn off each removable disk in the chassis and then the chassis itself. Then remove the disks from the chassis, if needed.

3. Turn off the remaining hardware.

Starting Up and Shutting Down MediaServer Systems

These directions explain how to start up and shut down the CHALLENGE XL and DM MediaServer systems.

Although the layout of the hardware is different in the XL and DM models, the procedures for turning the server on and off, rebooting the server, and using the System Controller are the same.

When you see the maintenance menu, the shutdown is complete. At this point, you can turn off the server by pressing the power switch to Off.

Starting Up the Server

To start the server from a power off state:

1. Turn the power switch on.

   The maintenance menu appears.

2. Do one of the following:

   - If the RAID storage units are off, turn them on.
   - If the RAID storage units are on, turn them off, then back on again. (This procedure is called *power cycling*.)

3. Wait until every RAID storage unit is online. (The word *online* will appear in place of the activity graph on the controller).

4. Select menu item 1 (Start System) from the maintenance menu of the console terminal.

Shutting Down the Server

To shut down the server, you must be logged in as root. Use the shutdown command:

```
% shutdown -g0
```

The prompt used in the above example may differ depending on the server.

Rebooting the Server

To reboot the server, you must be logged in as root. Use the *reboot* command:

```
wvid> reboot
```

The prompt used in the above example may differ depending on the server.

The system displays the prompt again, then a series of status messages.

Starting Up an ATM Switch

To restart an ATM switch, turn the power switch on and wait for the switch to boot up. Typically, ATM1 or ATM2 will appear in the window when the switch is ready.

Shutting Down an ATM Switch

To shut down an ATM switch:

1. Shut down the server.
2. Press the power switch on the front of the switch to 0 (zero).

CHAPTER 14

Operating Safely

This chapter describes the basic principles for operating all Avid DNG systems safely.

While using the system, feel free to experiment with the software by trying new commands, using new techniques, and adjusting various settings to learn what works best for you.

In most cases you can avoid damaging the system or destroying the files as long as you follow a few simple operational rules.

Failure to follow the basic safety rules listed in this chapter could result in damage to the system.

Save and Back Up Frequently

NewsCutter users should save bins, projects, and rundowns frequently while working. The Auto-Save feature protects the work in most cases, but it is good practice to save the bins, rundowns, and stories explicitly when you are satisfied with the work.

The Auto-Save feature is disabled on AirPlay MP systems. You should back up the source and work files whenever you have made significant progress.

Back up the bins and projects on 3.5-inch diskettes after each editing or scheduling session.

Why Saving is Important

While you work, the project is only stored in volatile RAM.

If the power fails and the system shuts down unexpectedly, the Avid Media Processor loses everything stored in RAM. Saving the bins and projects protects the work by copying the information from RAM to the storage drives.

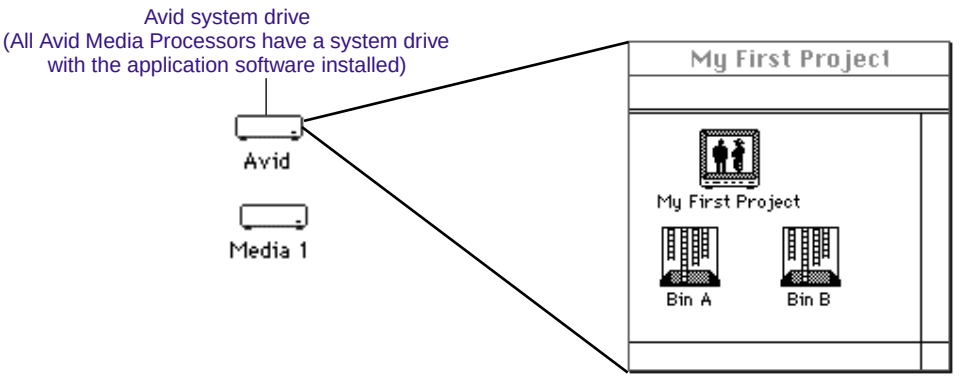


Figure 14-1 Project and Bins Saved on the Avid System Drive

Why Backups are Important

Drives can provide long-term storage, but over time, they might become damaged, or the files saved on the drives could be accidentally destroyed or corrupted.

Make backups of work bins and projects on 3.5-inch diskettes at the end of every editing or scheduling session. Then if the original files are lost, the bin and project backups can be reinstalled. Batch record the clips and stories to re-create any lost media files.

Backing Up Bins and Projects

NewsCutter users should back up bins and projects at the end of every editing session to avoid losing work. If you are using AirPlay MP for news applications, Avid strongly recommends copying important bins and projects onto a 3.5-inch diskette at the end of each session.

Projects and bins require very little storage space and are easily saved on 3.5-inch diskettes. Projects store general information about the job. Bins store data about clips and stories.

The system can only play clips and stories if the associated media files with the digital video and audio information are online, but media files require too much storage space to be stored on 3.5-inch diskettes. However, if the original files are deleted or corrupted, you can copy the projects and bins from the backup diskette onto the Avid system drive and then batch record to create new media files.

You must have the original source footage to batch record; you cannot rerecord clips that originated from a feed unless you record the feed to tape.

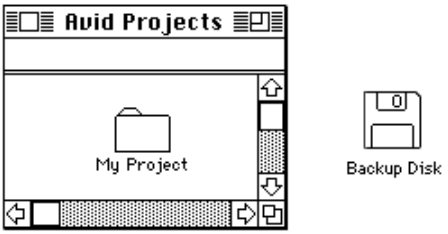
The easiest method is to copy the entire Project folder to the 3.5-inch diskette.

1. Insert a formatted 3.5-inch diskette into the diskette drive.

On multichannel AirPlay MP systems, make sure you insert the diskette in the diskette drive for the channel that has the material you want to back up.

2. Double-click the Avid Projects folder.
3. Drag the appropriate project folder to the diskette icon.

The Avid Media Processor copies the folder and its contents onto the diskette.



4. Drag the diskette icon to the Trash to eject it.

Hints for Recording

Use the guidelines in this section to ensure the best results when recording.

Choose the Correct Storage Drive

Avid's broadcast resolutions provide more picture detail and crisper sound, but also require faster drive access rates and more drive storage space than other digital video. Some drives cannot handle these demands. Use only 9-GB storage drives attached to a SiliconExpress IV board installed in an Avid Media Processor.

Store Media Files on MediaDrives—Projects on the Avid System Drive

Mixing in a few small bin and project files with large media files can cause drive fragmentation. To prevent fragmentation, store bins, projects, and other small files on the Avid system drive, where the Avid DNG system software is installed. Store all media files separately on the MediaDrives.

Do not run drive defragmentation software on Avid MediaDrives. These have been found to corrupt the audio and video files. The speed of the drives is able to overcome fragment file situations.

Storing media files on the MediaDrives, not the Avid system drive, is also important because the system does not recognize media files if they are located on the same drive as the Avid system application.

Do Not Completely Fill MediaDrives

If the MediaDrives are filled to capacity, the system slows down. If all the online MediaDrives are filled to capacity, you will be unable to record. A 9-GB drive holds approximately one hour of video with two tracks of 48 kHz of audio.

Record Video and Audio to Separate Drives

Video and audio can be recorded across volumes; when a volume reaches its capacity, stop recording, select a different drive, and resume recording. For the longest continuous recording, record the audio and video to separate drives. For the most efficient playback, be sure to choose separate drives, not two partitions of the same drive.

Choose Drives with Enough Storage Space

Choose MediaDrives with enough space to store the material. If you are recording from a Mark IN to a Mark OUT and choose drives without enough storage, a dialog box appears. Switch to drives that have enough storage space for the clip and begin recording.

If the drive fills during recording, a dialog box appears. Switch drives and the system continues recording at the timecode where it stopped recording. When you finish, edit the two clips together into one clip.

When you have the Discontinuous Timecode option selected, the system switches drives automatically. For more information, see the section on recording discontinuous timecode in the application's user's guide.

Store Fewer Than 100 Clips in Each Bin

Avid bins function most efficiently when they contain fewer than 100 clips. When you are working with a lot of source material, create a number of bins, each named according to the events it contains. Then you can log or record an optimal number of clips into each bin. For AirPlay MP commercial insertion applications, you may want to organize the bins by ID numbers.

Create Large Rather Than Small Master Clips

The system works more efficiently when there are fewer individual media files online. Therefore, log and record larger master clips when possible. Then you can break the master clips into smaller subclips.

Keep Only One System Folder Online

The System Folder includes all the software required to operate the Avid Media Processor. It is stored on the internal Avid system drive.

If you store another copy of the System Folder on the Avid system drive or on any of the other drives attached to the Avid Media Processor, the system may become confused.

The Avid Media Processor may access any of the online System Folders when starting — you cannot be sure which it will use. If one of the folders does not have the correct initialization software installed, the system will not start successfully.

Removing Extra System Folders

To check if you have more than one System Folder:

1. At the desktop, choose Find from the File menu, or press ⌘-F.
2. Type the name System Folder and press Return.
3. To look for additional copies of the System Folder, choose Find Again from the File menu, or press ⌘-G.

   The System Folder looks like the following example when viewed as an icon. (To view icons, click the directory window where the folder is stored, then choose By Icon from the View menu.)

4. If you find additional System Folders, drag the unwanted versions to the Trash so only one copy remains on the system.

Unplugging the Keyboard or Mouse

Unplug the keyboard or mouse only when the Avid Media Processor is turned off.

Unplugging the keyboard or mouse while the Avid Media Processor is turned on could damage the system board. As a result, the mouse and keyboard would no longer function.

To unplug the keyboard or mouse:

1. Choose Quit from the File menu, or press ⌘-Q, if you are running an application.
2. At the Finder level of the Avid Media Processor, choose Shut Down from the Special menu to turn off the Avid Media Processor.
3. Unplug the keyboard or mouse.
4. Reconnect the keyboard or mouse via the Avid Media Processor ADB ports before restarting the system. For diagrams, see Chapter 6.

If the Keyboard or Mouse Accidentally Disconnects

If the keyboard or mouse disconnects:

1. Shut down the Avid Media Processor by using its power switch as soon as possible on the back of the unit.
2. Reconnect the keyboard or mouse.
3. Restart the system.

Switch MediaDrives Safely

MediaDrives contain media files. Media files are the digital video and audio the system captures and uses for playing back. During the scheduling session, you may need to switch drives to bring specific media files online or to provide storage space for recording new media files.

Although you can switch drives while the Avid Media Processor is running, Avid recommends turning off the Avid Media Processor before switching drives. Use one of the following procedures each time you switch MediaDrives.

Switching Drives Without Turning Off the System

To remove a drive without turning off the system:

1. At the desktop, drag the drive icons to the Trash.
2. Turn off the MediaDrives.

   For removable drives, turn off each drive in the chassis, then turn off the chassis.
3. Switch the MediaDrives, making sure that the SCSI IDs for the new drives are set correctly.

   For removable drives, take the drives out of the chassis and insert new ones. Make sure the drives spin down completely before you remove the drives.
4. Turn on the new MediaDrives.

   Restart the chassis and each drive in the chassis.
5. Within the Avid application, choose Mount All from the File menu to mount the new drive.

To reconnect storage devices, see **Chapter 9**.

Make sure you use the correct SCSI cables, addresses, and termination when setting up the new storage configuration. Do *not* use the Mount command from the SiliconExpress control panel to remount the drives.

Switching Drives After Turning Off the System

To switch a MediaDrive after turning off the system:

1. Choose Quit from the File menu to quit the software, or press ⌘-Q.
2. Choose Shut Down from the Special menu on the desktop to turn off the Avid Media Processor.
3. Power off the MediaDrives.
4. For removable drives, turn off each drive in the chassis, then turn off the chassis.
5. Switch the MediaDrives, making sure that the SCSI IDs for the new drives are set correctly.

   Take out the removable drives and insert new ones. Make sure the drives spin down completely before you remove the drives.
6. Restart the system in the following order:
   a. The chassis and each drive in the chassis
   b. The MediaDrives
   c. All other hardware except the Avid Media Processor
   d. The Avid Media Processor
7. Launch the Avid application.
8. Reopen the project.
9. Choose Mount All from the File menu.

To reconnect storage devices, see **Chapter 9**. *Always read the latest documentation supplied with the drives. Technology and procedures change over time.*

Use the correct SCSI cables, addresses, and termination when setting up the new storage configuration. Do *not* use the Mount command from the SiliconExpress control panel to remount the drives.

CHAPTER 15

Maintenance

This chapter describes maintenance routines that should be done on a regular basis to minimize problems from occurring on the Avid DNG systems.

AirPlay MP Maintenance Procedures

As part of the maintenance routine, always make sure that the cooling fans and air flow vents for the Avid components, racks, and storage devices are unrestricted.

The following sections are Avid's recommended maintenance procedures. These procedures apply to both single-channel AirPlay MP and multichannel AirPlay MP except where noted. In order to use these procedures, the system setup should be as follows:

- General Controls "Show Desktop" selection.

  General Controls is located in the Control Panels, System Folder. Uncheck the Show Desktop box to turn it off. This hides the desktop when AirPlay MP is running. It prevents operators from inadvertently switching to the desktop unintentionally.

- Apple Menu Items folder should contain the following:
  - AirPlay application alias
  - Chooser (installed as part of Macintosh O/S)
  - Control Panels alias (installed as part of Macintosh O/S)
  - Find File (installed as part of Macintosh O/S)
  - VScanner alias (multichannel only)
  - AirPlay•Database alias (multichannel record only)

  The Apple Menu Items folder is located in the System Folder. All other items can be removed.
- The Startup Items folder must contain the following files and in the order listed:
  - AvidNet Startup (single and record channels with peer-to-peer option)
  - VScanner alias (multichannel only)
  - AirPlay•Database alias (multichannel record only)
  - AirPlay application alias (single and playback channels only - this automatically launches AirPlay MP after a reboot and minimizes restart time)

  The Startup Items folder is located in the System Folder. Startup items list and launch in alphabetical order.

On the multichannel record, you must add a "space" character to the head of the AvidNet Startup, VScanner and AirPlay•Database alias names to put them in the right order.

Daily AirPlay MP Maintenance

Perform the following procedure on AirPlay MP systems each day.

1. Restart each channel of the system.
    a. Quit out of AirPlay. From the File menu, choose Quit. Click Quit in the dialog box that follows.
    b. From the Application menu (upper right corner of the screen), choose Finder. This step is only necessary if the Show Desktop function is turned off in the General Controls Control Panel.
    c. From the Special menu, choose Restart.

    Each channel will automatically return to AirPlay.
2. For systems with the Asrun option; copy the As Run Log to diskette (skip this step for multichannel record).
    a. Hide AirPlay MP. From the Application menu, choose Hide AirPlay MP.
    b. Display the Finder. From the Application menu, choose Finder.
    c. Open the internal Avid drive (double-click the icon).
    d. Open the AirPlay MP folder.
    e. Insert a formatted diskette.
    f. Drag the desired As Run Log (labeled with the date and the .LOG file extension to the diskette icon.
    g. Eject the diskette by dragging its icon to the Trash.
    h. From the Apple menu, choose AirPlay MP to return to AirPlay MP.

Weekly AirPlay MP Maintenance

Check that the date and time are correct on each channel. Select the Date and Time window from the Control Panels folder. The Control Panels are found in the Apple Menu Items list. Alternatively it can be found on the internal Avid drive in the Control Panels folder. The Control Panels folder is located in the System Folder.

Monthly AirPlay MP Maintenance

Perform the following procedures on AirPlay MP systems each month. On multichannel systems, perform the procedure on the record channel first, then each playback channel. See **"Multichannel Monthly Maintenance" on page 239**.

Single-Channel Monthly Maintenance

This procedure is for single-channel AirPlay MP systems only. See **"Multichannel Monthly Maintenance" on page 239** for multichannel AirPlay MP systems. After completing this section, continue to **"Single and Multichannel Monthly Maintenance" on page 240**.

1. Delete the Media Database files on single-channel systems as follows.
    a. Quit out of AirPlay MP and go to the desktop.
    b. From the Apple Menu Items folder, choose Find File.
    c. From the Find File window, choose find items "on all disks."
    d. Type **`media database`** and click Find.
    e. When Find File locates the media database files, an Items Found window will open. Select the media database files in this window and drag them to the Trash.
    f. Close the Items Found window.

2. Check for *creating* and *.write* files using the Find File utility.
    a. Type **`creating`** in the Find File window and click Find.
    b. If Find File locates a creating file, the Items Found window will open. Select the creating files in this window and drag them to the Trash.
    c. Close the Items Found window and type **`.write`** (note the period before the word). Click Find. Select the .write files in this window and drag them to the Trash.
    d. Close the Find File windows.
    e. Choose Empty Trash from the Special menu and click OK.

Multichannel Monthly Maintenance

This procedure is for multichannel AirPlay MP systems only. See **"Single-Channel Monthly Maintenance" on page 238** for single-channel AirPlay MP systems. After completing this section, continue to **"Single and Multichannel Monthly Maintenance" on page 240**.

1. Delete the Media Database files multichannel systems as follows. Perform these steps on the record channel first, then repeat this procedure for each playback channel.
    a. Quit out of AirPlay and go to the desktop.
    b. Highlight the Database Server window (record channel first). From the File menu, choose Quit.
    c. Highlight the VScanner window.
    d. Choose Delete Media Database from the Volume menu.
    e. Click Yes.
    f. Highlight the VScanner window. From the File menu, choose Quit.
2. Check for *creating* and *.write* files using the Find utility.
    a. From the Apple Menu Items folder, choose Find File.
    b. From the Find File window, choose find items "on all disks."

c. Type **creating** and click Find.

d. If Find File locates a creating file, an Items Found window will open. Select the creating files in this window and drag them to the Trash.

e. Close the Items Found window and type **.write** (note the period before the word). Click Find. Select the .write files in this window and drag them to the Trash.

f. Close the Find File windows.

g. Choose Empty Trash from the Special menu and click OK.

Single and Multichannel Monthly Maintenance

To complete the AirPlay MP monthly maintenance, perform the following:

1. Run Disk First Aid™. See **"Maintaining Drives with Disk First Aid" on page 243** for additional information.

   a. Open the internal Avid drive.

   b. Open the Utilities folder.

   c. Double-click the Disk First Aid icon.

   d. Highlight the internal Avid drive and click OK on the warning message that follows. Click Verify.

   - If Disk First Aid indicates the drive needs to be repaired, you must boot from the Disk Tools diskette to repair it.
   - If Disk First Aid indicates there is no problem with the drive, proceed to step e.

   e. Repair any reported problems with Disk First Aid. Call Avid Broadcast Customer Support if Disk First Aid cannot repair the problem.

   - On the record channel, highlight all buffer drives and shared library drive partitions and click Repair.

- On the playback channels, highlight only the buffer drive partitions and click Repair.

f. Choose Quit from the Disk First Aid File menu.

2. Run Norton Disk Doctor™ - Version 3.2 or higher (when using striped MediaDrives).

   a. Double-click on the Disk Doctor icon.

   b. Set Preferences (Disk Doctor Edit menu). Click Use Defaults, check box for Fix Automatically, uncheck box for Check for Defective Media. Click Save. Preferences only need to be set one time.

   c. On the record channel, select all partitions of all drives. On the playback channels, select only the internal Avid system drive and the buffer drive partitions (click on the first drive partition and then hold down the Shift key while clicking on the additional partitions). Do not highlight the shared library partitions on the playback channels.

   d. Click Examine.

   e. View the reports. Unless Norton warns of a problem not repaired, quit Disk Doctor by choosing Quit from the File menu. Call Avid Broadcast Customer Support if Norton Disk Doctor cannot repair the problem.

   f. Close the Utilities folder.

3. Delete old playlists.

   a. Open the Avid Projects folder.

   b. Open the Station project folder.

   c. Drag all old playlists to the Trash.

   d. From the Special menu, choose Empty Trash. Click OK.

   e. Close the Station project and Avid Projects folders.

4. Delete old As Run Logs.

   a. Make certain all old As Run Logs are no longer needed.

b. Open the AirPlay MP folder.

c. Drag all old As Run Logs to the Trash. These logs are identifiable by the date in their names.

This does not include the one labeled "AirPlay As Run Log." It is the current As Run Log.

d. From the Special menu, choose Empty Trash. Click OK.

e. Close the AirPlay MP folder.

f. Close the Avid system drive window.

5. On the single and record channels only, rebuild desktop files.

a. Restart the record channel with the ⌘-Option keys pressed. Hold the keys down until desktop rebuild prompt comes up.

b. Release the ⌘-Option keys and click OK to rebuild the desktop file for each drive partition.

MediaServer Maintenance

Over time, the number of entries in the server database increases. This causes database operation to be less efficient. When this number grows to 5-6 times the number of spots (master clips) in the system, or approximately 10,000 entries, a rebuild is recommended. See the *Avid MediaServer Administration Guide* for details.

Avid recommends that the MediaServer clients be rebooted once a day. The following server and database maintenance should be completed on a regular schedule:

- Do a complete consistency, statistics, and database space check.
- Perform a complete backup of the database.
- Reboot the database server.

Maintaining Drives with Disk First Aid

Every drive has a directory or drive index that tells the system where files reside. If the drive directory becomes damaged or corrupted, the system will not be able to locate the files.

If the system is reporting drive errors or if files cannot be opened, try running Disk First Aid to find and repair errors on the drive before reformatting or calling Avid Broadcast Customer Support.

Using Disk First Aid

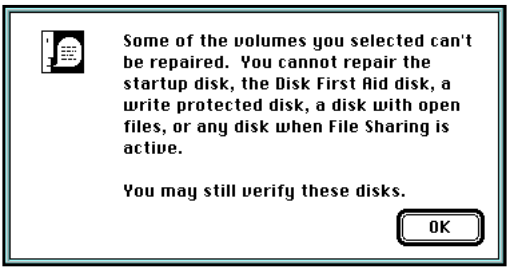
You can avoid drive errors by running Disk First Aid regularly. To use Disk First Aid:

1. Insert the Disk Tools diskette in the drive and restart the Avid Media Processor. (The Disk Tools diskette was included with the system software and documentation.)

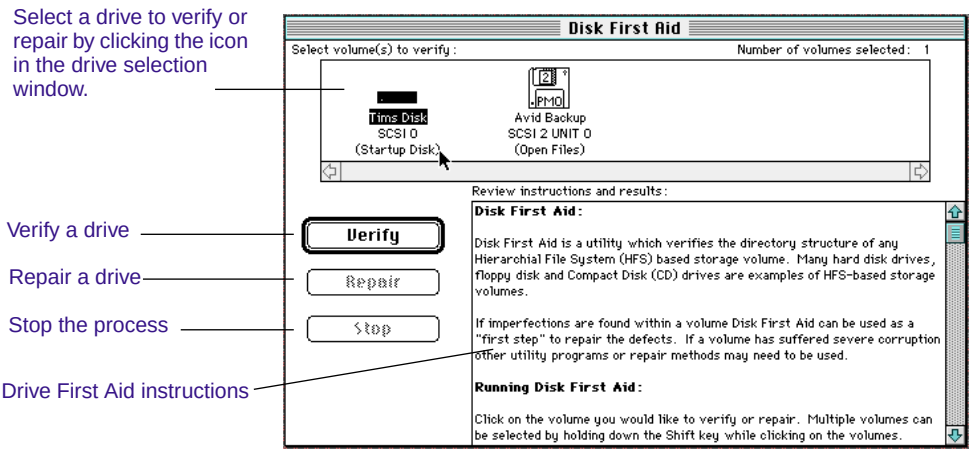
Disk First Aid can be installed in the Utilities folder on the Avid system drive. The Disk First Aid application can be used to check and repair MediaDrives from the system drive. If checking or repairing the system drive, Disk First Aid must be used from the Disk Tool diskette.

2. Double-click the Disk First Aid icon on the drive to start the application.

3. If you are checking the system drive or a shared drive, click OK in the warning dialog box that appears.


Some of the volumes you selected can't be repaired. You cannot repair the startup disk, the Disk First Aid disk, a write protected disk, a disk with open files, or any disk when File Sharing is active.
You may still verify these disks.
OK

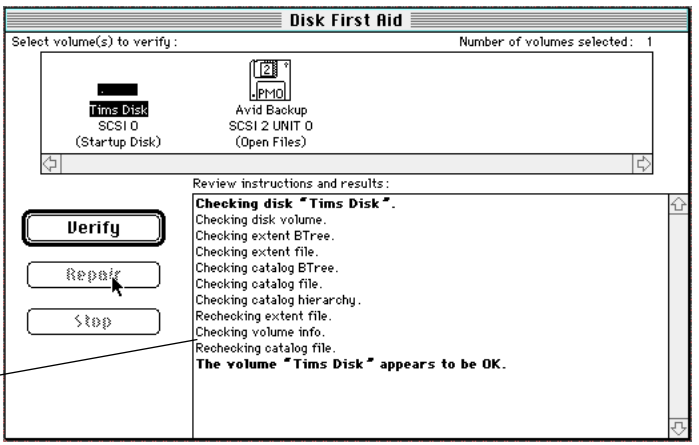
The Disk First Aid window opens. This window contains all the necessary controls for you to run Disk First Aid.


Select a drive to verify or repair by clicking the icon in the drive selection window.
Verify a drive
Repair a drive
Stop the process
Drive First Aid instructions
Disk First Aid
Select volume(s) to verify :
Number of volumes selected: 1
Tims Disk
SCSI 0
(Startup Disk)
PM10
Avid Backup
SCSI 2 UNIT 0
(Open Files)
Review instructions and results :
Verify
Repair
Stop
Disk First Aid:
Disk First Aid is a utility which verifies the directory structure of any Hierarchial File System (HFS) based storage volume. Many hard disk drives, floppy disk and Compact Disk (CD) drives are examples of HFS-based storage volumes.
If imperfections are found within a volume Disk First Aid can be used as a "first step" to repair the defects. If a volume has suffered severe corruption other utility programs or repair methods may need to be used.
Running Disk First Aid:
Click on the volume you would like to verify or repair. Multiple volumes can be selected by holding down the Shift key while clicking on the volumes.

4. Select the drive you want to verify by clicking the drive in the drive selection window.

5. Click the Verify button to verify the selected drive. Disk First Aid verifies the selected drive and reports the results.

   If errors appear when testing the Avid system drive, click Verify before repairing them. Click Repair for any MediaDrive errors.



Verification results

6. If the drive needs to be repaired, click the Repair button.

   After the drive has been successfully repaired, choose Quit from the File menu to exit Disk First Aid. If Disk First Aid reports that the selected drive cannot be verified or repaired, see **"If Drive Status Cannot Be Verified" on page 245**.

If Drive Status Cannot Be Verified

If Disk First Aid is unable to verify the status of a drive:

1. Copy all media to another drive.
2. Delete all media files on the damaged drive.
3. Run Disk First Aid again.

   If Disk First Aid is unable to verify the status of a system drive, call Avid Broadcast Customer Support for instructions.

CHAPTER 16

Troubleshooting

This chapter provides information about solving or preventing common problems.

When You Run into Trouble

While using the system, you may occasionally see a debugger screen, an error message, or experience a problem such as the pointer "freezing" on the screen. If you have trouble with the Avid Media Processor, take a moment to read the information in this section. See **"Solutions to Common Problems" on page 249**.

For additional troubleshooting information, read the file named *Power Macintosh Read Me* or access the online *Macintosh User's Guide*. These files are on the Avid system drive of the Avid Media Processor.

Responding to Error Messages

When an error message appears, capture the contents on the message (for example; to a log book) and then note the conditions and actions of the system prior to the error message.

Click the OK button in the window to clear the message. If the system does not respond, turn off the Avid Media Processor.

To help diagnose and correct the problem, gather as much information about the situation as you can before starting over:

- Make a note of exactly what you were doing when the problem occurred. Write down the message on the screen and its ID number (if any). Also list the programs you were using and the names of any items that have been added to the System Folder since the system software was installed. This information helps Avid Broadcast Customer Support diagnose the problem.
- Check the screen for any clues. Is a menu selected? What programs and document icons are open? Note anything else that seems relevant.
- If you were typing text and were not able to save it before the problem occurred, you can write down the parts of the text still visible on the screen so that some of the work will be easy to replace.
- Ask your system administrator and other users about the problem you are having — they might have a solution or it might be a known abnormality. If a system log is kept, check it for a solution or record the problem.
- When the system does not respond to keyboard and mouse commands, and the menus cannot be accessed, it might simply be processing a command. Check the pointer — if it appears as a spinning wheel or a clock, the system is processing a command.

Starting Over

Sometimes you can eliminate a problem simply by clearing the Avid Media Processor's memory and starting over.

If possible, save any open documents before restarting the Avid Media Processor. If the system does not respond to any input, or if the debugger screen is displayed, saving might not be possible. Try pressing ⌘-Option-Esc to quit the program in use when the problem occurred; if this works, you can then save the documents open in other programs before restarting.

To restart the Avid Media Processor, try the following steps:

1. If possible, choose Restart from the Special menu or from the dialog box that is on screen.
2. If Restart cannot be chosen, hold down the Option and Control keys while you press the Power-on key.

   This key combination restarts the Avid Media Processor. (Use this key combination only when choosing Restart from the Special menu does not work.)
3. If nothing happens, look for the Reset and Interrupt buttons on the front of the Avid Media Processor and press the Reset button (see **Figure 4-1**).

   Pressing the Reset button is like turning the power switch off and then on again. You will lose any work you have not saved. (The Interrupt button is intended for use by programmers who have debugging software installed.)
4. If pressing the Reset button does nothing, turn off the Avid Media Processor by using the power switch, wait at least 10 seconds, then turn it on again.
5. If the power switch does not turn off the Avid Media Processor, cycle the power sequencer (if equipped) or unplug the Avid Media Processor.

   If you suspect that the problem is with a peripheral device, such as a printer or external hard drive, turn the peripheral device off for 10 seconds or more, then turn it on again and restart the Avid Media Processor.

   If the problem persists, leave the suspected device powered off.

Solutions to Common Problems

The following are possible problems followed by their possible solutions.

The Avid Media Processor is turned on but the screen is dark.

The Avid Media Processor or the monitor is not getting power, a program has darkened the screen, or the monitor controls are not adjusted properly.

- If using a screen saver software, press a key or move the mouse to turn off the screen saver. Remove the screen saver software from the Avid system drive. Screen saver programs are not supported on DNG systems.
- Check that the monitor is turned on.
- Check that the power cord is plugged in and firmly connected to the Avid Media Processor and that the electrical outlet has power. The power light on the Avid Media Processor's front panel should be on.
- Check the monitor's brightness control and increase it if necessary.
- Check that the monitor is set up correctly in the Monitors control panel.
- The Avid Media Processor may be having a problem recognizing a SCSI device. Turn off external SCSI devices and restart.

  If the Avid Media Processor starts after you turn off the SCSI devices, see **Chapter 9** for information on connecting SCSI devices and assigning SCSI ID numbers.

  Turn on the devices one at a time to isolate the defective unit.
- The system software is not installed on the Avid system drive, the system software is damaged, or the system drive is not working properly. See the *Release Notes* about reinstalling the system software or call Avid Broadcast Customer Support.

A diskette icon with a blinking question mark appears during startup.

The blinking question mark indicates that the Avid Media Processor cannot find system software. Repair the damaged drive or reinstall system software from the supplied diskettes.

Start the Avid Media Processor using the Disk Tools diskette. If repairing the drive does not help, call Avid Broadcast Customer Support.

A diskette icon with an X appears and the diskette is ejected.

The Avid Media Processor ejected a diskette that is not a startup diskette.

Wait a few seconds. The Avid Media Processor should start from the Avid system drive. Only insert diskettes after the Avid Media Processor has started.

A icon with a sad face appears during startup.

A “sad Macintosh” icon appears and the Avid Media Processor will not start.

The Avid Media Processor cannot start because of a problem with the system software or the Avid Media Processor hardware.

- Eject any diskettes by turning off the Avid Media Processor and then holding down the mouse button while you turn the Avid Media Processor on again.

- Try starting with a different startup diskette (such as the Disk Tools diskette). If the "sad Macintosh" icon appears again, note any screen messages and call Avid Broadcast Customer Support.
- Turn off all the peripheral devices and restart the system.

The hard drive icon does not appear on the desktop.

If the Avid system drive icon does not appear on the desktop, try the following:

- If the drive is the startup Avid system drive:
  - Shut down the Avid Media Processor, wait at least 10 seconds, and then turn it on again.
  - Start the Avid Media Processor using the Disk Tools diskette. If repairing the drive does not help, call Avid Broadcast Customer Support.
- If the drive is external, make sure it is turned on and its cable is connected firmly. Restart the Avid Media Processor.
- Power cycle the suspected drive assembly.
- Check the ID numbers of all SCSI equipment connected to the Avid Media Processor. For information on SCSI devices, see Chapter 9.

Icons do not appear correctly on the screen.

You need to "rebuild the desktop" — a process that helps the Avid Media Processor keep track of files and folders on the Avid system drive.

Hold down the Option-⌘ keys while starting the Avid Media Processor. Keep holding down the keys until a message asks whether you want to rebuild the desktop. Click OK.

The Avid Media Processor cannot read a diskette.

If you see a message that a diskette is unreadable, try one of the following:

- If the diskette has never been used, you may simply need to initialize it.
- The diskette drive may need cleaning. Contact your local computer store.
- The diskette might be damaged.

If you are trying to use a DOS diskette:

- The diskette might have been formatted incorrectly on a DOS computer. On DOS computers it is possible to format a standard double-sided diskette in a high-density (1.44 K) format, and vice versa. Diskettes formatted this way cannot be read by an Avid Media Processor.

  When formatting diskettes on a DOS computer, always format standard double-sided diskettes in the 720 K format. Always format high-density diskettes in the 1.44 K format.

  If a diskette has been formatted incorrectly, use a DOS computer to copy its contents onto another diskette that has been properly formatted.

The pointer does not move when you move the mouse.

The mouse is not connected properly, or its signals are not reaching the Avid Media Processor, or there is a software error.

- Turn off the Avid Media Processor using the power button, check that the mouse cable is connected properly, then restart the Avid Media Processor.
- Restart the Avid Media Processor and press the keyboard Tab key and verify different desktop icons highlight with each press.
- Clean the mouse.

- If you have another mouse or pointing device, try connecting and using it. (Turn off the Avid Media Processor first.) If it works, there is probably something wrong with the mouse.
- Restart the Avid Media Processor with a different startup diskette (such as the Disk Tools diskette). If the mouse works, reinstall system software on the startup diskette.
- If the problem recurs, it may be due to an incompatible program. Make sure that all programs, desk accessories, and system extensions you are using are compatible with the system software.
- Detach all ADB, remote control, and GPI devices from the broadcast panel and restart the Avid Media Processor.

  If none of these procedures solves the problem, call Avid Broadcast Customer Support.

Typing on the keyboard produces nothing on the screen.

The insertion point has not been set, no text is selected, the keyboard is not connected properly, the keyboard's signals are not reaching the Avid Media Processor, or there is a software error.

- Make sure the program you want to type in is the active program.
- Place the pointer in the active window and click to set an insertion point or drag to select text (if applicable).
- Turn off the Avid Media Processor by using the power button, then check that the keyboard cable is connected properly at both ends.
- Turn off the Avid Media Processor, then connect the keyboard cable to the other ADB port on the keyboard. (You may have to unplug the mouse to do this.) If the keyboard cable is connected to the monitor, connect it to another ADB port on the monitor or directly to the Avid Media Processor's ADB port (on the back of the Avid Media Processor). If typing still does not work, the problem is most likely with the keyboard.

- If you have access to another keyboard, try using it instead. Unplug the keyboard and try a mouse only. (Turn off the Avid Media Processor before connecting it.)
- Restart the Avid Media Processor with a different startup diskette (such as the Disk Tools diskette). If this solves the problem, reinstall the system software on the startup diskette.

  If none of these procedures solves the problem, call Avid Broadcast Customer Support.

A dialog box with a picture of a bomb appears.

The system has a software problem.

- Write down what you were doing when the message appeared, and write down the number on the message, if there is one.
- Restart the Avid Media Processor. Most software problems are temporary and restarting usually corrects the problem.
- If the problem recurs, check the startup drive and program you are using when the message appears. Make sure that all programs, desk accessories, and system extensions you are using are compatible with the system software. Reinstalling the system software may correct the problem.
- Sometimes incompatible system extensions or control panels can cause system software problems. Restart while holding down the Shift key; this temporarily turns off all system extensions. If the Avid Media Processor works normally with this method, remove all extensions from the Extensions folder (inside the System Folder) and put them back into the Extensions folder one at a time. Restart after you add each extension. This procedure should identify any incompatible extensions.

You cannot start the application or it quits unexpectedly.

When you try to open an application, a message appears that not enough memory is available.

- Avid applications do not run while other applications are running. Check the Apple pull-down menu and verify no other applications are running.
- The application needs more memory or the Avid Media Processor ran out of memory.
- Quit the open applications and then open the application you want to use, or restart the Avid Media Processor.
- Use the application's Info window to give it more memory. For more information, refer to the online *Macintosh User's Guide*.
- Use the Memory control panel to turn on virtual memory. This is especially important if using applications designed for Power Macintosh. For more information, refer to the online *Macintosh User's Guide*.

The application program cannot be opened because a file cannot be found.

Power Macintosh programs use special files called *shared libraries*. Any necessary shared libraries should be installed automatically when you install Power Macintosh programs.

Follow the directions that came with the application to reinstall the application. If the shared library is still missing, contact the software program's manufacturer for assistance.

You experience problems using a document from a DOS computer.

If you cannot open a DOS file using the Macintosh, try the following:

- Open the document from within the program by choosing the Open command from the program's File menu.
- Use the PC Exchange control panel to change the document's type to one that can be opened by the program.

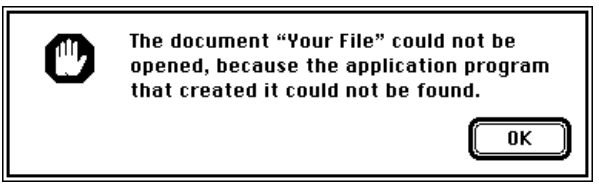
If a DOS document is displayed incorrectly, or you see strange codes or characters in the document:

- The application may have special procedures for opening documents with different file formats. See the information that came with the program.
- Try opening the document in another program.

Some characters that can be displayed on the Avid Media Processor are not accurately displayed on DOS computers.

You see a message that an application program cannot be found.

The following dialog box appears if you try to open a document created using software that is not on the hard drive.



Normally, this message appears when you try to open a document that came from another Avid Media Processor using different software.

- Some documents can be opened by more than one application program. Try starting a program that you think could open the document, then choose the Open command from the program's File menu to try to open the document. (Or drag the document to the program's icon. If the program can open the document, the program's icon is highlighted.)
- Purchase and install the correct software to use the document, or find out if the original owner of the document can convert it to a usable format.
- Do not try to open the files in the System Folder. Most of the System Folder files are used by the Avid Media Processor for internal purposes, and are not intended to be opened.

- Rebuild the desktop by holding down the Option-⌘ keys while starting the Avid Media Processor. Keep holding down the keys until you see a message asking whether you want to rebuild the desktop. Click OK.
- If the document is from a DOS computer, use the PC Exchange control panel to specify which Macintosh program will open the document.

The system fails to boot or hangs after drive installation.

If the system fails to boot or it hangs after you install a drive:

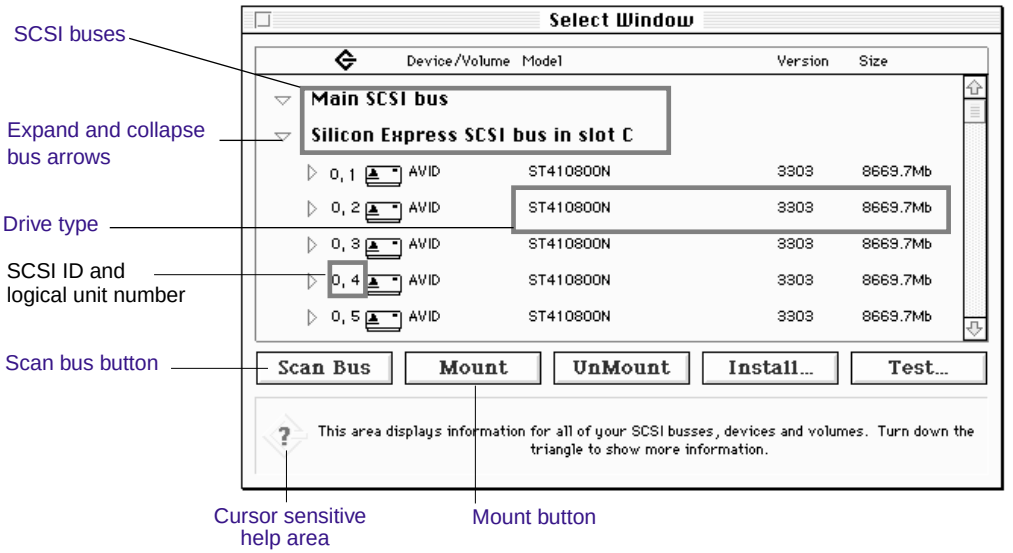
1. Check that all SCSI devices on the bus have a unique SCSI ID. Duplicate SCSI IDs will cause system problems.
2. Make sure that all SCSI cables are properly connected.
3. Check that the SCSI bus is properly terminated (see Chapter 9).
4. If the system still will not boot or if it hangs, disconnect the drive and bring the system back to its original configuration.
5. Turn on one external drive at a time and verify from within the Control Panel SExpress application and confirm the SCSI setting matches the one set on the drive.
6. If the system now operates properly, either the drive, a cable, or terminator may be defective. Contact Avid Broadcast Customer Support.
7. If the system still does not boot, recheck all connections and try again. If it again fails to boot, contact Avid Broadcast Customer Support.

A drive does not appear.

If drives do not appear on the desktop when you start the hardware for the system, or do not appear in the menu of available storage drives within the application, you can use the AVIDdrive™ utility to mount the drives.

1. Go to the desktop and double-click the AVIDdrive Formatter icon.

   The utility is usually located in the Utilities folder. It opens to the Select Window, which displays bus and drive information along with buttons for the Formatter's main functions.



2. If the drive that you want to mount does not appear in the Select Window, then click the Scan Bus button.

   When the Formatter is opened, it should scan the bus automatically to identify all the drives attached to the Avid Media Processor. Clicking the Scan button rescans the buses for any devices that may have been turned on since the Formatter was started.

   If a drive still does not appear, double-check the SCSI cable connections, the ID for each device, and the termination, then click the Scan Bus button again. It might required power cycling the Avid system and drives.

3. Select the drive you want to mount by clicking its icon.

4. Click the Mount button.

5. Click the close box in the upper left corner of the Select Window to close the utility.

   The mounted drive should appear on the desktop and in the drive menus within the Avid application.

6. Click the Close button in the upper left corner of the window.

The keyboard or mouse is pulled out.

If the keyboard or mouse is pulled out:

1. Turn off the Avid Media Processor by using the power switch (see Figure 4-2).
2. Connect the keyboard or mouse.
3. Restart the system.

Liquid is spilled on the keyboard.

If liquid is spilled on the keyboard:

1. Turn off the Avid Media Processor immediately.
2. If the liquid is water or another clear liquid, unplug the keyboard, turn it upside down to drain the liquid, and let it dry for 24 hours with forced air (a fan) supplied.
3. If you spill a greasy or sticky liquid, call Avid Broadcast Customer Support.

The mouse becomes sticky.

The mouse contains a small ball that must roll smoothly. Keep this ball free of dirt and grease by using the mouse on a clean, lint-free surface like the mouse pad that comes with the system. The mouse should be cleaned occasionally.

To clean the mouse:

1. Turn the mouse upside-down.

2. Rotate the mouse ball cover on counterclockwise and remove the cover.
3. Turn the mouse right-side up to remove the ball from its socket.
4. Remove any dust from the ball and the socket.
5. Place the ball back into the socket.
6. Replace the mouse ball cover and rotate the cover clockwise to secure it.

You See a "This product is not licensed" error message.

Sometimes when you launch AirPlay MP, NewsCutter, or Media Recorder, the system displays the message, "This broadcast product is not licensed to run on this machine." This message usually means that the dongle has come loose or been disconnected, or a software item has not been detected during startup.

1. Quit the software application.
2. Check that the dongle is present and correctly connected.
3. Check that the EvE INIT file is installed in the Extension folder. The Extensions folder can be found in the System Folder. Make sure that the extension has not been disabled.
4. Restart the system and launch the software.
5. If you still see the message, contact Avid Broadcast Customer Support.

CHAPTER 17

Hardware Specifications

This chapter provides information about requirements for the site where the Avid system is installed and the physical dimensions and power requirements for the Avid system components.

Site Requirements

The following are the site requirements for all Avid systems.

Power Requirements

Each channel of an Avid DNG product requires one circuit of 20 A, 110 to 120 V ac, 60 Hz or 10 A, 220 to 224 V ac, 50 Hz. Storage upgrades might require additional electrical service. Consult your Avid representative. Surge protection and an uninterruptible power supply (UPS) are recommended for all systems.

Rack-mounted systems using 120 V ac require a female NEMA L5-20 receptacle located within 24 inches of the base of the rack. There must be one connector for each Avid Media Processor.

The 220 V ac systems ship with pigtails on the input cable. Consult your local electrical codes for details.

Source Requirements

Avid systems accept video and audio that adhere to broadcast standards. Excessive jitter and/or noise on a signal is not an acceptable source.

Synchronization Requirements

A stable video reference source is required for synchronizing the system. Multichannel systems might require multiple feeds of the video reference.

Printing Requirements

The Avid Media Processor uses the standard Apple Macintosh serial port printing capabilities. You can use network printers via Ethernet connections.

Networking Requirements

Avid DNG systems are always connected to networks, isolated from corporate networks. This protects your broadcast system from network problems.

Telephone Requirements

Systems which include a modem require an analog telephone line. Avid encourages all customers to use the Avid Online Bulletin Board Service (BBS) to log feature requests, to report problems, and to access the latest news from Avid headquarters and other users.

Environmental Requirements

Table 17-1 lists the environmental specifications for a standard broadcast environment.

Table 17-1 Environmental Specifications

Condition	Range
Operating temperature	50°F to 75°F (10°C to 24°C)
Storage temperature	–40°F to 80°F (–40°C to 27°C)
Relative humidity	8% to 80% / Wet bulb 82°F (27.7°C maximum)
Altitude	0 to 6000 ft (0 to 1829 m)

Component Weights and Dimensions

Table 17-2 provides the dimensions and weights of Avid system components.

Table 17-2 Physical Specifications for Components

Component	Rack Mount	Rack Units	Height x Width x Depth	Weight
ATM switch				
ASX-200BX (add a rack unit for cables)	Yes	3 +1	4.75x 17.5 x 18 in (12 x 44.5 x 47.7 cm)	24.9 lb (11.3 kg)
ASX-1000 (add a rack unit for cables)	Yes	14 +1	24.5 x 19 x 18 in (62 x 48 x 45.7 cm)	89.7 lb (41 kg)

Table 17-2 Physical Specifications for Components (Continued)

Component	Rack Mount	Rack Units	Height x Width x Depth	Weight
Audio				
Two-channel audio amplifier (optional)	Yes	1	2 x 19 x 12 in (5 x 48 x 30 cm)	16 lb (7 kg)
Audio interface	Yes	1	2 x 19 x 9 in (5 x 48 x 23 cm)	3.8 lb (1.7 kg)
Avid eight-channel audio interface (optional)	Yes	2	3.5 x 19 x 9 in (8.9 x 48 x 23 cm)	7 lb (3.2 kg)
Speakers	No	—	10 x 6.5 x 7.5 in (25 x 17 x 19 cm)	7 lb (3.2 kg)
Speaker/amplifier combination	Yes	1	2 x 19 x 12 in (5 x 48 x 30 cm)	14 lb (6.4kg)
Video Slave Driver	Yes	1	2 x 19 x 9 in (5 x 48 x 23 cm)	3.8 lb (1.7 kg)
Avid Media Processor (computer system)	Yes	5	8.68 x 16.68 x 23.12 in (22 x 42 x 59 cm)	58 lb (26 kg)
CHALLENGE XL (server)	No	—	74.5 x 46 x 59.75 in (189 x 117 x 152 cm)	400 lb (180 kg)
CHALLENGE DM (server)	No	—	40 x 39 x 34 in (102 x 99 x 86 cm)	160 lb (72 kg)
Communication devices				
AirPlay MP remote control (rack-mounted)	Yes	1	2 x 19 x 7 in (5 x 48 x 18 cm)	6.6 lb (3 kg)
AirPlay MP remote control (desktop)	No	—	3.5 x 7 x 5.5 in (9 x 18 x 14 cm)	
Keyboard	No	—	2 x 19 x 8 in (5 x 48 x 20 cm)	3.8 lb (1.7 kg)
Modem	No	—	5 x 3 x 10 in (13 x 8 x 25 cm)	1.5 lb (0.7 kg)

Table 17-2 Physical Specifications for Components (Continued)

Component	Rack Mount	Rack Units	Height x Width x Depth	Weight
Mouse	No	—	1 x 2 x 4 in (2.5 x 5 x 10 cm)	0.3 lb (0.1 kg)
Disk drives (local and shared library)				
Avid MediaDrives	No	—	4 x 10 x 11 in (10 x 25 x 28 cm)	15 lb (6.8 kg)
MegaDrive MX/500 RAID	Yes	8	7 x 19 x 20 in (18 x 48 x 50 cm)	65 lb (29.2 kg)
Ciprico RAID	Yes	4	7 x 17 x 22 in (18 x 43 x 56 cm)	75 lb (33.8 kg)
MediaDock unit (MediaDock Shuttle™ drives are mounted inside of the Media Dock)	Yes	4	17 x 7 x 14 in (44 x 18 x 50 cm)	25 lb empty (11.3 kg) 2 lb/drive (0.9 kg)
MediaShare	No	—	5 x 8 x 9.2 in (13 x 20 x 23 cm)	6.3 lb (2.8 kg)
MRS without storage expanders	Yes	3	5.25 x 19 x 23.5 in (13 x 48 x 60 cm)	55 lb empty (24.8 kg) 8 lb/drive (3.6 kg)
MRS with storage expanders	Yes	3	5.25 x 19 x 23.5 in (13 x 48 x 60 cm)	60 lb empty (27 kg) 8 lb/drive (3.6 kg)
Ethernet hub (desktop)	No	—	1 x 7 x 4 in (2.5 x 18 x 10 cm)	1.1 lb (0.5 kg)
Ethernet hub (rack-mounted) (add a rack unit for cables)	Yes	2 +1	3.5 x 19 x 6 in (8.9 x 48 x 15 cm)	

Table 17-2 Physical Specifications for Components (Continued)

Component	Rack Mount	Rack Units	Height x Width x Depth	Weight
Monitors				
14-inch UI monitor	No	—	14 x 14 x 14.5 in (36 x 36 x 37 cm)	31 lb (14 kg)
17-inch record/engineering monitor	No	—	16 x 16 x 17 in (41 x 41 x 43 cm)	38 lb (17.1 kg)
20- and 21-inch UI monitor	No	—	18 x 20 x 23 in (46 x 51 x 58 cm)	71 lb (32 kg)
Playback monitor (user-supplied; dimensions vary)	—	—	—	—
Power sequencer	Yes	1	1.75 x 19 x 7.5 in (5 x 48 x 19 cm)	
Video input/output hardware (to be used with customer-supplied decks, feeds, or routers)				
Avid GPI controller	Yes	1	1.75 x 19 x 7.5 in (5 x 48 x 19 cm)	6.7 lb (3 kg)
Black burst generator (optional)	No	—	1.75 x 7 x 8 in (5 x 18 x 20 cm)	1.9 lb (0.9 kg)
User interface ADB switch	Yes	3	4 x 11 x 5.5 in (10 x 28 x 14 cm)	4.5 lb (2 kg)
V-LAN and VLXi	Yes	1	1.75 x 19 x 11 in (5 x 48 x 28 cm)	8.5 lb (3.8 kg)

Avid-Supplied Rack Specifications

Avid provides a rack-mount housing for the AirPlay MP systems. The enclosures are expandable to include one, two, or three racks, depending on the size of the system (see Table 17-3).

Racks include rails, a ground bar, and cable tie bars for organizing and securing the system's cables. A rail is mounted to each of the four corners of the rack. The rails have mounting holes from top to bottom. Slide kits are supplied with system components and are secured to the rails using three rack mounting holes. Each set of three mounting holes is called a rack unit (1.75 inches in height).

Table 17-2 lists whether the component is rack-mountable or not.

Table 17-3 Avid System Rack Enclosure Capacity

Configuration	Rack Units	Width	Depth
Single rack	38	22.06 in (56 cm)	30 in (76 cm)
Double rack	76	44.12 in (112 cm)	30 in (76 cm)
Triple rack	114	66.18 in (168 cm)	30 in (76 cm)

A cooling fan is mounted on the top panel of the rack. Provide a minimum clearance of 12-inches above the rack for the air to exhaust.

Figure 17-1 shows the front view of an enclosure that has been expanded to include two racks.

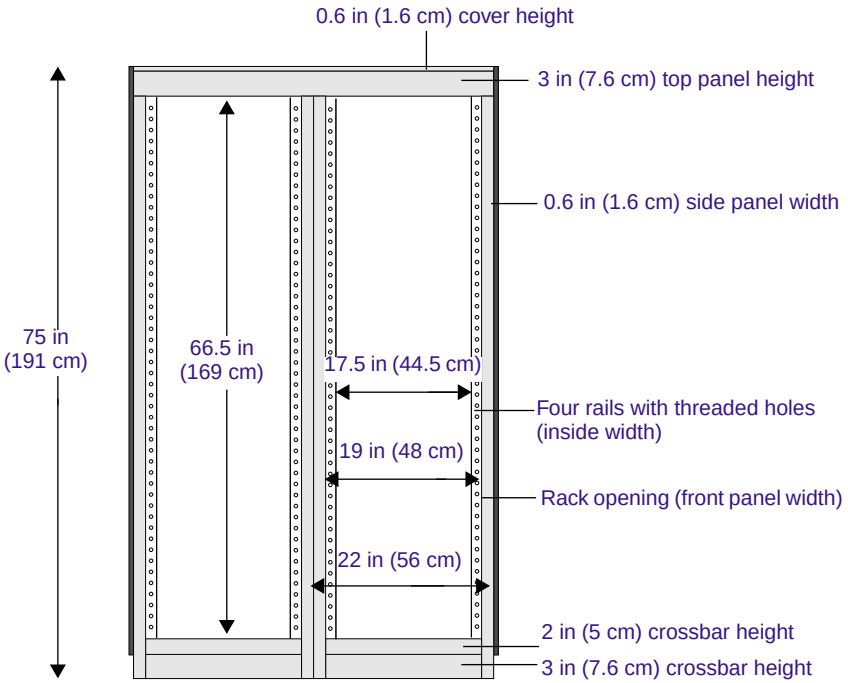

0.6 in (1.6 cm) cover height
3 in (7.6 cm) top panel height
0.6 in (1.6 cm) side panel width
75 in
(191 cm)
66.5 in
(169 cm)
17.5 in (44.5 cm)
Four rails with threaded holes
(inside width)
19 in (48 cm)
Rack opening (front panel width)
22 in (56 cm)
2 in (5 cm) crossbar height
3 in (7.6 cm) crossbar height

Figure 17-1 Two-Rack Enclosure (front view)

Be sure the installation site provides adequate front and back service access, as shown in Figure 17-2.

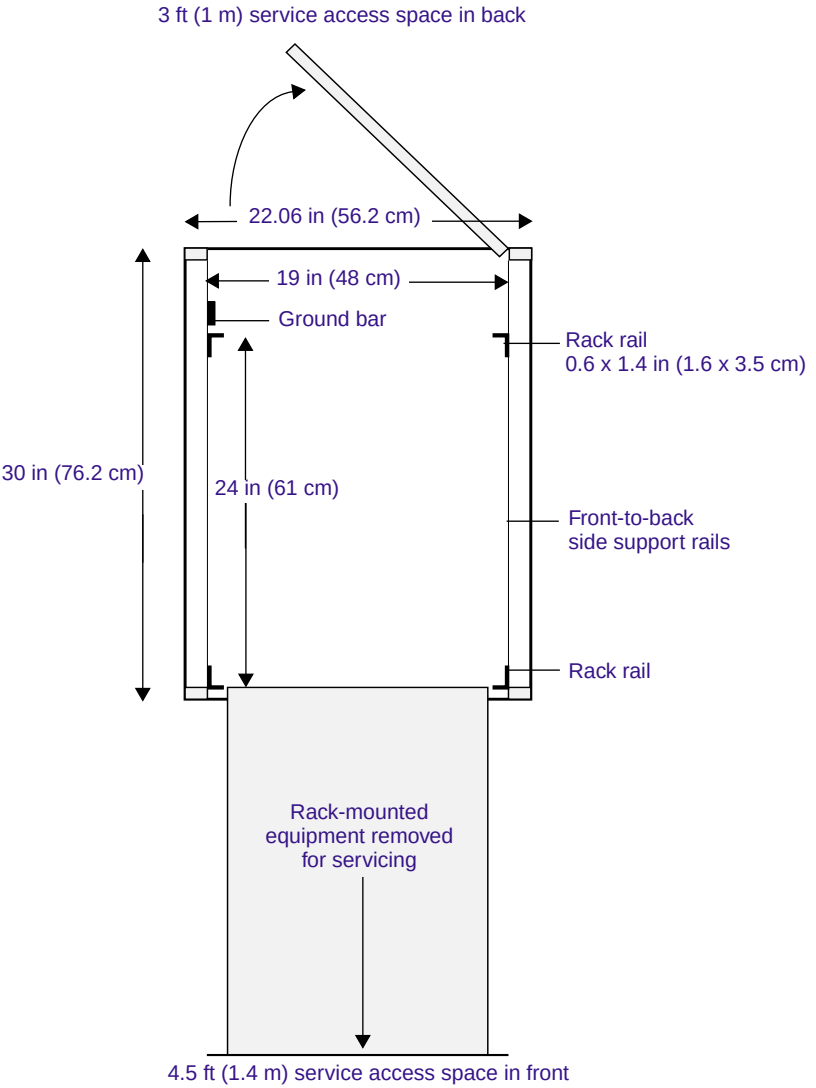


Figure 17-2 Rack Dimensions and Service Access (overhead view)

The base of each rack has casters and leveling feet that you can remove to bolt the enclosure to the floor (see Figure 17-3).

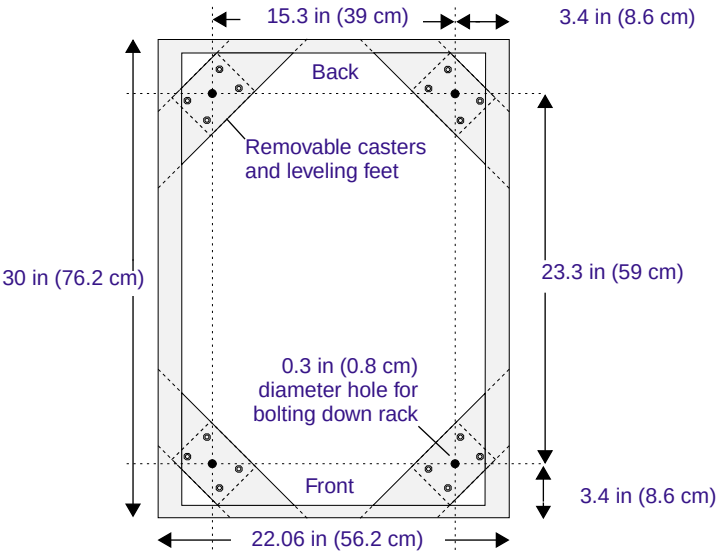


Figure 17-3 Base for a Rack (overhead view)

Power Requirements

Make sure the site has an adequate power source with overcurrent protection. If it is an existing power source, make sure that the additional power draw will not overload the circuits. Take into consideration the equipment nameplate ratings when addressing this concern.

Most systems are designed to work with single-phase (3-wire) power cord with a grounded neutral conductor. To reduce the risk of electric shock, always plug the cord into a grounded power outlet that meets all of the local electrical codes.

Avid rack-mount systems now include a power sequencer. This component allows the entire rack to be started up with a single switch. The power switch is also a circuit breaker. One power sequencer is included with each Avid Media Processor.

Rack-mounted systems using 120 V ac require a female NEMA L5-20 connector located within 24 inches of the base of the rack. There must be one connector for each Avid Media Processor in a multichannel AirPlay MP system.

International rack-mounted systems are supplied with no input connectors. Consult your local electrical codes for the proper connector combination, for example, 10 A at 220 V ac. There is one power input for each Avid Media Processor.

Table 17-4 lists the power requirements for individual system components. The total approximate power for a system with one MediaDrive is 915 W. Each system requires three surge and spike-protected power strips (not supplied by Avid).

For best performance, keep all system power connections on the same power feed distribution panel. Do not connect fans, lamps, coffee pots, or other equipment to the same outlet that is powering the Avid equipment.

Table 17-4 Power Requirements

Item	Type	Voltage	Frequency	Power
ATM switches				
ASX-200BX	Auto-sensing	120 V ac 240 V ac	60 Hz 50 Hz	200 W
ASX-1000	Auto-sensing	120 V ac 240 V ac	60 Hz 50 Hz	

Table 17-4 Power Requirements (Continued)

Item	Type	Voltage	Frequency	Power
Audio				
Audio interface	Auto-sensing	100 to 120 V ac 220 to 240 V ac	60 Hz 50 Hz	16 W
Two-channel audio amplifier	Switch selectable	120 V ac 220 V ac	60 Hz 50 Hz	300 W max
Avid eight-channel audio interface (optional alternative)	Auto-sensing	90 to 240 V ac	47 to 63 Hz	30 W
Speaker/amplifier combination		110 V ac 230 V ac	60 Hz 50 Hz	35 W
Video Slave Driver	Auto-sensing	100 to 120 V ac 220 to 240 V ac	60 Hz 50 Hz	16 W
Avid Media Processor (computer system)	Auto-sensing	100 V ac 240 V ac	60 Hz 50 Hz	248 W @ 110 V ac, 60 Hz (configuration dependent)
Communication devices				
AirPlay MP remote control (desktop model)	Auto-sensing	90 to 264 V ac	47 to 63 Hz	25 W
AirPlay MP remote control (rack-mounted model)	Auto-sensing	90 to 264 V ac	47 to 63 Hz	25 W
Modem		120 V ac 240 V ac	60 Hz 50 Hz	

Table 17-4 Power Requirements (Continued)

Item	Type	Voltage	Frequency	Power
Disk drive systems				
MediaDrives	Auto-sensing	120 V ac, ± 10% 240 V ac, ± 10%	60 Hz 50 Hz	70 W
MediaDock	Switch selectable	83 to 245 V ac	47 to 63 Hz	140 W (idle) 200 W (max)
MediaShare	Auto-sensing	90 to 240 V ac	47 to 63 Hz	25 W
MegaDrive MX/500 RAID		110 V ac, 220 V ac	47 to 63 Hz	200 W (idle)
Ciprico RAID	Auto-sensing	100 to 120 V ac 200 to 240 V ac	60 Hz 50 Hz	
MRS expanders with or without storage expander	Switch selectable	90 to 132 V ac 180 to 264 V ac	47 to 440 Hz	300 W
Ethernet hub (desktop)	Dedicated	110 V ac or 220 V ac	60 Hz 50 Hz	
Monitors				
14-inch UI monitor (NTSC)		120 V ac	60 Hz	85 W
14-inch UI monitor (PAL)	Auto-sensing	110 V ac 220 V ac	60 Hz 50 Hz	85 W
17-inch record/engineering monitor	Auto-sensing	100 to 120 V ac 200 to 240 V ac	60 Hz 50 Hz	120 W
20-inch UI monitor	Auto-sensing	120 V ac ± 10% 220 to 240 V ac	60 Hz 50 Hz	140 W
Playback monitor (user-supplied; requirements vary)	—	—	—	—
Power Sequencer	Switch selectable	115 V ac or 230 V ac	60 Hz 50 Hz	

Table 17-4 Power Requirements (Continued)

Item	Type	Voltage	Frequency	Power
System enclosure's fan	Dedicated	110 V ac or 220 V ac	60 Hz 50 Hz	
Video and input/output hardware				
Avid GPI controller	Auto-sensing	90 to 64 V ac	47 to 63 Hz	25 W
Black burst generator	Switch Selectable	120 V ac 240 V ac	60 Hz 50 Hz	20 W
User interface ADB switch (is not ac powered)	—	—	—	—
V-LAN and VLXi	Auto-sensing	120 V ac 220 V ac	60 Hz 50 Hz	20 W

Broadcast Panels

One of three possible rear broadcast panels may be attached to the Avid Media Processor. Broadcast panels originally contained all the external connectors for both the digital and analog connections. In an effort to make the broadcast panel less cluttered, digital and analog panels have been redesigned. The following figures identify the connectors on the three broadcast panels.

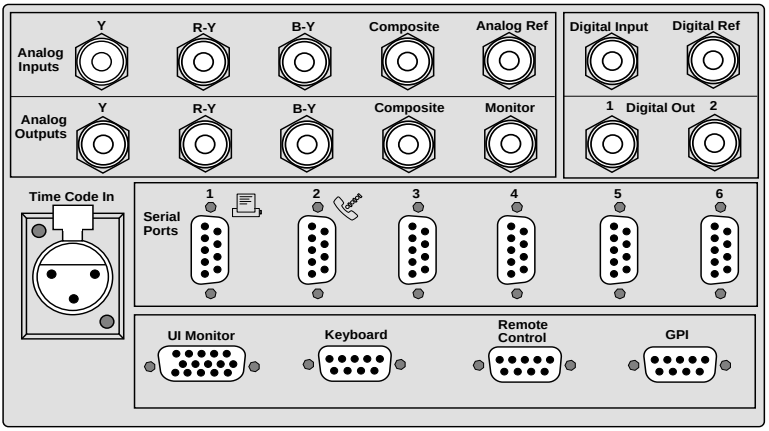


Figure 17-4 Original Broadcast Panel Connectors

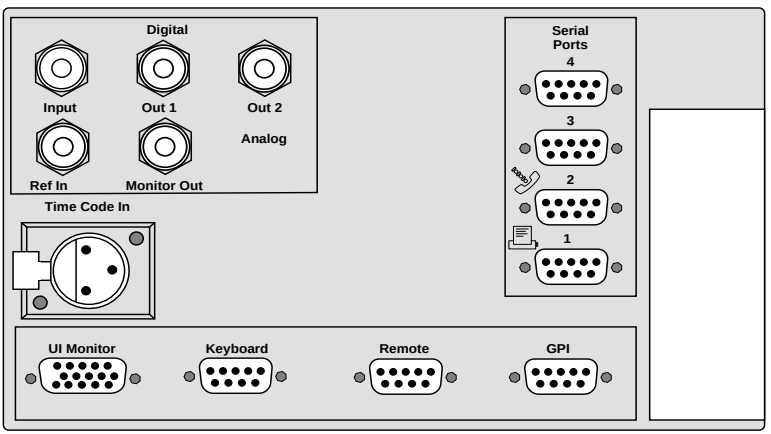


Figure 17-5 Digital Broadcast Panel Connectors

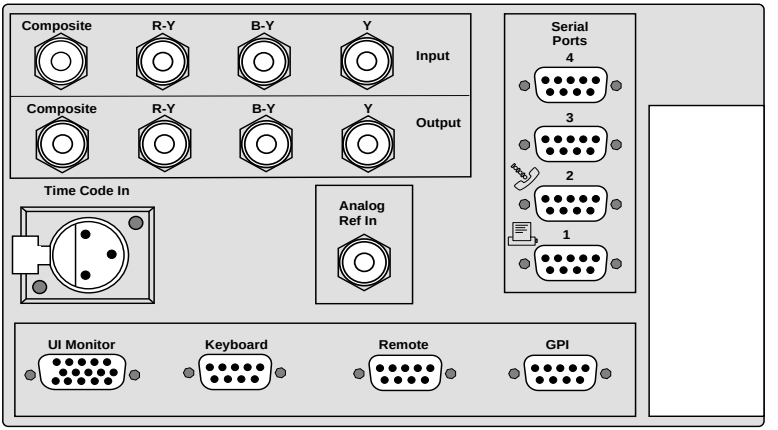


Figure 17-6 Analog Broadcast Panel Connectors

Serial Ports

The original broadcast panel contains six serial ports; the other two panels have four. The serial ports use 9-pin male connectors. Figure 17-7 shows the pinouts for the serial ports.

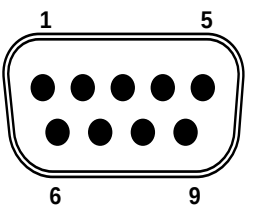


Figure 17-7 9-Pin Serial Connector

Table 17-5 lists the pin assignments for the serial connectors. Not all serial devices use every signal.

Table 17-5 Pin Assignments for Serial Connectors

Pin	Signal
1	DTR
2	CTS
3	TxD-
4	GND/Shield
5	RxD-
6	TxD+
7	Not used
8	RxD+
9	Not used

Keyboard, Remote, and GPI Connectors

The keyboard, remote control, and GPI connectors are 9-pin female connectors. Figure 17-8 shows the pinouts for these connectors.

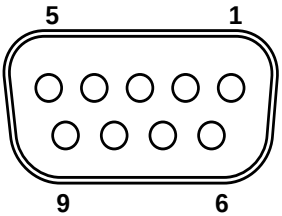


Figure 17-8 Keyboard, Remote, and GPI Connector

Table 17-6 lists the pin assignments for the keyboard, remote, and GPI connectors.

Table 17-6 Keyboard, Remote, and GPI Connector Pin Assignments

GPI	Remote	Keyboard	Signal
6	6	6	ADB
Not used	Not used	5	Power on
Not used	Not used	4	+5 V, 500 mA maximum
2	2	2	GND/shield

UI Monitor Port

The UI monitor port is the connection for the UI monitor. It uses a 15-pin female connector. Figure 17-9 shows the pinouts for the UI monitor connectors.

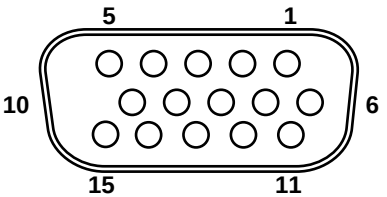


Figure 17-9 UI Monitor Connector

Table 17-7 lists the pin assignments for the UI monitor connector.

Table 17-7 UI Monitor Connector Pin Assignments

Pin	Signal
1	Red video
2	Green video
3	Blue video
4	MonID2
5	SYNC GND/HSYNC GND
6	Red GND
7	Green GND
8	Blue GND

Table 17-7 UI Monitor Connector Pin Assignments (Continued)

Pin	Signal
9	Not used
10	SYNC GND / HSYNC GND
11	MonID0
12	MonID1
13	HSYNC
14	VSYNC
15	COMPSYNC

Avid Broadcast Video Board

When the broadcast panel is removed from the Avid Media Processor, plug the UI monitor directly into the Avid Broadcast Video Board (ABVB). The NuBus ABVB will have either an analog or digital top card attached to it. The analog top card provides a external female 15-pin UI monitor connector. Figure 17-10 shows the pinouts for the analog video connector.

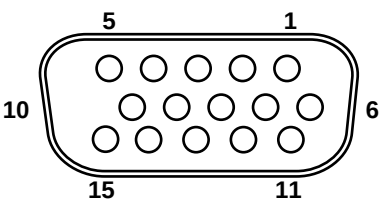


Figure 17-10 ABVB Analog 15-Pin Video Connector

Table 17-8 lists the pin assignments for the ABVB 15-pin analog connector.

Table 17-8 NuBus ABVB Video Connector Pin Assignments

Pin	Signal
1	Y out
2	CV out
3	Ground
4	CV in
5	Y in
6	Genlock
7	Blue Y out
8	Red Y out
9	Red Y in
10	Blue Y in
11	No connection
12	No connection
13	Ground
14	No connection
15	No connection

When the ABVB has the serial digital top card installed, a 9-pin male connector is used. Figure 17-11 shows the pinouts for the digital video connector.

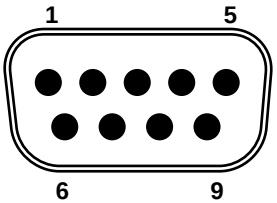


Figure 17-11 ABVB Digital 9-Pin Video Connector

The following table lists the pin assignments for the ABVB serial digital 9-pin connector. The signals on pins 1 through 5 are provided on the digital broadcast panel via BNC connectors.

Table 17-9 ABVB Video Connector Pin Assignments

Pin	Signal
1	Analog monitor out
2	Reference / genlock in
3	Digital in
4	Digital out 1
5	Digital out 2
6	Not used
7	Ground
8	Ground
9	Ground

CHAPTER 18

Supported Decks

This chapter provides a list of Avid compatible decks.

Direct Serial Control

Each deck listed in this section can connect directly to an Avid Media Processor via a serial cable (see Chapter 7). The cable links the serial port on the system's computer to the serial remote connector on the deck. Special conditions or qualifications that apply to some decks are described in this section.

The serial ports on the broadcast panel are not standard RS-422 pinouts. Use only Avid supplied cables for serial deck connections.

Fully Supported Direct Serial Control

The decks listed in Table 18-1 are supported for direct serial control and do not require V-LAN control modules for recording or making digital cuts.

Table 18-1 Direct Serial Control: Fully Supported Decks

Manufacturer	Model	Format	Comments
Ampex®	CVR-60, 65, 70, 75	Betacam SP	Same as Sony BVW series.
Panasonic®	AG-7650, 7750	S-VHS	LTC only, not VITC. Optional timecode board required.
Panasonic	AJ-D350	D3	
Panasonic	AU-60, 63, 65	MII	MII protocol works for logging only.
Panasonic	AU-505	MII	Portable deck. MII protocol works for logging only.
Panasonic	AU-550, 620, 630, 640	MII	MII protocol works for logging only.
Panasonic	AU-650, 660	MII	MII protocol works for logging only.
Sony®	BVU-900, 920, 950	3/4-inch U SP	Optional timecode board required (BKU-905).
Sony	BVW-60, 65 70, 75	Betacam SP	
Sony	VO-9800, 9850	3/4-inch U SP	Optional timecode board required (BKU-704 or 705).
Sony	EVO-9800	Hi8	Not frame accurate.
Sony	PVW-2800, 2600, 2650	Betacam SP	

Conditionally Supported Direct Serial Control

The decks listed in Table 18-2 can be used for logging and recording, but not for digital cut to timecode. If digital cut to timecode is required, use a V-LAN with these decks.

Table 18-2 Direct Serial Control: Conditionally Supported Decks

Manufacturer	Model	Format	Comments
Ampex	CVR-10, 15, 40	Betacam	
Sony	BVW-10, 15, 40	Betacam	
Sony	BVU-800, 820, 850, 870	3/4-inch U	Optional timecode board required (TC-20, not TC-13).
Sony	BVH-3000, 3100	1-inch	
Sony	DVR-10, C10, 20, 28	D2	

Untested Direct Serial Control

Table 18-3 lists the decks believed to work based on specifications alone. However, Avid has not tested these decks and field test data is not available.

Table 18-3 Direct Serial Control: Untested Decks

Manufacturer	Model	Format	Comments
JVC®	KR-M820U	3/4-inch U	Timecode board required.
Sony	BVH-2000, 2000PM	1-inch	

Table 18-3 Direct Serial Control: Untested Decks (Continued)

Manufacturer	Model	Format	Comments
Sony	BVH-2180, 2180PM	1-inch	
Sony	BVH-2500, 2700	1-inch	
Sony	BVH-2800, 2830,	1-inch	
Sony	BVH-2000PS, 2180PS	1-inch	
Sony	BVH-2500PS, 2800PS	1-inch	
Sony	BVH-2830PS	1-inch	
Sony	DVR-1000	D2	

Logging Only Direct Serial Control

Table 18-4 lists the decks to be used only for logging. They are not supported for recording or digital cuts.

Table 18-4 Direct Serial Control: Logging Decks Only

Manufacturer	Model	Format	Comments
Sony	BVW-35	Betacam	Problems with control, accuracy and video stability.
Sony	BVW-50	Betacam	Replaces BVW-35. Problems with control, accuracy and video stability reported.
Sony	EVO-9850	Hi8	V-LAN required for recording. TC indicator not present.

V-LAN Control

The following decks are supported with V-LAN control. The V-LAN VLX hardware is software configurable.

Fully Supported V-LAN Control

Table 18-5 lists the fully supported V-LAN control decks.

Table 18-5 V-LAN Control: Fully Supported Decks

Manufacturer	Model	V-LAN VLXi Type	Format	Comments
Ampex	CVR-10, 15, 40	SBV	Betacam	
Ampex	CVR-60, 65,70, 75	SBV	Betacam SP	
Ampex	VPR-3, 6, 80	VPR	1-inch	
Ampex	VPR-200, 250, 300	VPR	1-inch	
JVC	DS-DT900	JDA	DAT	
JVC	CR-850U, 600U	J50	3/4-inch U	Timecode board required. PROM J50223TN required for timecode indicator.
Panasonic	AG-7650, 7750	SBV	S-VHS	Timecode board required.
Panasonic	AU-60, 63, 65	MII	MII	
Panasonic	AU-505	MII	MII	Portable deck.
Panasonic	AJ-D350	SBV	D3	

Table 18-5 V-LAN Control: Fully Supported Decks (Continued)

Manufacturer	Model	V-LAN VLXi Type	Format	Comments
Panasonic	AU-550, 620, 630, 640, 650, 660	MII	MII	
Sony	BVH-2000, 2000PM	SBV	1-inch	
Sony	BVH-2180, 2180PM	SBV	1-inch	
Sony	BVH-2500, 2700, 2800	SBV	1-inch	
Sony	BVH-2830, 3000, 3100	SBV	1-inch	
Sony	BVH-2500PS, 2800PS, 2830PS	SBV	1-inch	
Sony	BVU-800, 820, 850, 870	SBV	3/4-inch U	Optional timecode board required (TC-20, not TC-13).
Sony	BVU-900, 920, 950	SBV	3/4-inch U SP	Optional timecode board required (BKU 950).
Sony	BVW-10, 15, 40	SBV	Betacam	
Sony	BVW-60, 65, 70, 75	SBV	Betacam SP	
Sony	DVR-10, C10, 20, 28	SBV	D2	
Sony	DVR-1000	SBV	D2	
Sony	VO-9800, 9850	SBV	3/4-inch U SP	Option timecode board required (BKU-704 or 705).
Sony	EVO-9800	SBV	Hi8	Not frame accurate.
Sony	EVO-9850	SBV patch	Hi8	

Table 18-5 V-LAN Control: Fully Supported Decks (Continued)

Manufacturer	Model	V-LAN VLXi Type	Format	Comments
Sony	PVW-2800, 2600, 2650	SBV	Betacam SP	
Sony	PCM-7030	SBV	DAT	

Untested V-LAN Control

Table 18-6 lists the decks believed to work based on specifications alone. However, Avid has not tested these decks and field test data is not available.

Table 18-6 V-LAN Control: Untested Decks

Manufacturer	Model	V-LAN VLXi Type	Format	Comments
JVC	KR-M860U	MII	MII	
JVC	PR-900U, PR-600U	J50	3/4-inch U	Timecode board required.
JVC	KR-M820U	SBV	3/4-inch U	Timecode board required.
Panasonic	TQ-2026F, 2027F	PQ2	LaserDisk	
Panasonic	TQ-3031	PTQ	LaserDisk	
Panasonic	LQ-4000	PLQ	Rewrite Laser	
Panasonic	LX-150	PLX	LaserDisk	Plays consumer LaserDisks and CDs.
Pioneer®	LD-V8000, 4200, 4400	PLV	LaserDisk	

Table 18-6 V-LAN Control: Untested Decks (Continued)

Manufacturer	Model	V-LAN VLXi Type	Format	Comments
Pioneer	VDR-V1000, V100	VDR	Rewrite Laser	
Sony	LVR-3000, 4000	LVR	Laser WORM	
Sony	LVR-5000, 6000	LVR	Laser WORM	
Sony	LVA-7000, 8000	LVR	Laser WORM	

Logging Supported V-LAN Control

Table 18-7 lists the decks that support logging only. Problems with video stability during recording and deck control have been reported.

Table 18-7 V-LAN Control: Logging Decks Only

Manufacturer	Model	V-LAN VLXi Type	Format	Comments
Ampex	CVR-35	SBV	Betacam	Problems including unstable digital video.
Ampex	CVR-50	SBV	Betacam	Replaces CVR-35. Similar problems.
Sony	BVW-35	SBV	Betacam	Problems including unstable digital video.
Sony	BVW-50	SBV	Betacam	Replaces BVW-35. Similar problems.

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